The Iron A

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A Review of the Hardware, Iron and Metal Trades.

INDEX TO

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Vol. XXXIX: No. 2. A New High-Speed Electric Light

At a recent exhibition at Augsburg, Germany, the Maschinen Fabrik Oerlikon, of Zurich, Switzerland, showed in practical of Zurich, Switzerland, showed in practical operation an electric light plant, driven by a compound high-speed engine of new and peculiar design. The engine was rated at 20 horse-power, and made 420 revolutions per minute, and, while mounted only on an ordinary wooden floor without holding-down bolts or special foundation, is said to have given admirable results in point of smooth vunning.

running.

The general features of the engine are shown in the engravings on this page, reproduced from Der Praktische Maschinen-Con-structeur. It will be noticed that the high structeur. It will be noticed that the high and low pressure cylinders are placed on opposite sides of the crank-shaft, their axes being almost in line. The cranks are arranged at an angle of 180°, and together with the connecting-rods are completely inclosed in the middle portion of the box frame. This is partially filled with oil, and lubrication is attained by submersion of the parts as in the Westinghouse engine. The valves are of the rotary type, and, in addition to their proper motion for steam admission and exhaust, are also given an end motion, so as to prevent unfor steam admission and exhaust, are also given an end motion, so as to prevent unequal wear and leakage. The way in which this is attained will be understood from the general view. Altogether the engine embraces a number of interesting features and deserves attertion.

Steam Bollers and their Settings.

The matter considered by the author was the best and most economical plan of setting for water-works. He gave his reasons for thinking that the best form of boiler for water-works is the horisontal return tubular. Proceeding, he said any good setting suitable for water-works purposes is equally applicable for most any purpose where steam is required.

Let us suppose that we are to set a tubular boiler to inches diameter and 16 feet long, containing 44 4-inch tubes. The boiler will be furnished with a steam dome 30 inches diameter and 42 inches high, also a mand desay are inches diameter and 6 feet mud drum 20 inches diameter and 6 feet long. The mud drum is attached to the mud drum 20 inches diameter and o feet long. The mud drum is attached to the boiler by means of cast or wrought iron necks near rear end of boiler, and extends through the rear of the setting, where the feed and blow-off pipes are attached outside of the rear wall. The walls of the setting should be built upon stone foundations about 20 or 24 inches deep, and the foundation under each wall about 24 inches wide; these foundations are to be leveled or even with the ground, and from this level the brickwork starts. The foundation being laid in place, block-up the boiler in position, with the bottom of boiler 4 feet above the ground. The steam dome must be plumb crosswise, and the bottom of 4 feet above the ground. The steam dome must be plumb crosswise, and the bottom of the boiler shell a trifle lower, say ½-inch, at the rear than at the fore end. We are now ready for the walls. The side walls are 12 inches, common brick, and one width (4½ inches) fire-brick, the fire-brick in the sides extending down to a line 4 inches below the grates. The side walls are carried up plumb until about 4 inches below the center of boiler, when the inside face is "racked in" toward the shell, touching it about 4 inches above the center of boiler; above this point the walls are built solid against the boiler, and tight up under the cast-iron lugs or brackets riveted to each side for supporting the boiler. The distance between the inside faces of the side walls is 3 inches more than the diameter of the boiler. As the front ends of the side walls are finished the anchor bolts for holding the cast-iron the anchor bolts for holding the cast-iron front should be solidly built into the masonry. For this size boiler the hoods, or doorways through which the fuel is thrown, would be about 16 inches deep, the bottom line of which is formed by a cast-iron dead plate extending clear across the furnace, and containing a ledge bearing for the grate-bar ends. Between the doorways themselves and between the doorways and the side and between the doorways and the side walls the spaces are to be filled in solid with fire-brick from the dead plate close up around the lower half of the boiler-shell end, the blance of the space at the end of the shell briance of the space at the end of the shell forming the front smoke-box being formed by common brick. A cast-iron plate is placed across the top of front smoke-box, which is provided with a nozzle suitable for receiving the chimney connection. The side walls above the supporting lugs on the shell are carried straight up 8 inches thick, and where a return flue over the top is not used the space between the walls is filled in

furnace and above the grates being laid with fire-brick. A very good kind of bridge wall is made by carrying the wall right up to the boiler shell, with the exception of an opening in the central portion 36 inches wide,

*Abstract of a paper read before the annual moeting of the American Water Works Association, Denver, Col., June, 1886, by Mr. Chas. A.

The boiler setting should be firmly bound together by means of heavy wall bars, six by the hand-spinning wheel.

the bottom of this opening, or what is the same thing, the top of the bridge wall, being 12 inches below the boiler shell. This arrangement tends to keep the flame close up to the shell, and directs it so that it does not have much tendency to leave the shell and dive down into the volume and dive down into the bottom of this opening, or what is the same thing, the top of the bridge wall, being 12 inches below the boiler shell. This arrangement tends to keep the flame close up to the shell, and directs it so that it does not have much tendency to leave the shell and dive down into the volume and for other sizes they ward.

The Reminiscences of a Pioneer in the Hanging Rock Region.

A correspondent of the Tribune writes to that newspaper as follows:

A correspondent of the Tribune writes to the uncompanied and dive down into the open space back of the bridge wall. The furnace should be about 5½ feet wide and 4½ feet long, the surface of the grates being in the neighborhood of 28 inches below the boiler. This grate sur-face of about 25 square feet will do for the average work, although it might have to be varied in shape, such as making it longer and narrower, or in area to accommodate some specific conditions of draft or fuel.

16-foot boilers, and for other sizes they vary accordingly. The author had little faith in the plan of admitting air back of the bridgewall, or otherwise than through the grate bars or fire-door opening, for every-day regular business; the knowledge and skill required to keep most of these devices up to what they are intended for would yield better results applied directly to firing. He favored returning the products of combussome specific conditions of draft or fuel.

It is found to be very good practice to place an 8-inch bridge wall just at the rear

In 1819 there went from Spartanburg, S. C., to Hanging Rock, on the Ohio side of the river, a certain man named John Means, carrying his slaves with him. He was an abolitionist, but not being able to manumit his slaves in his native State he sold his possessions there, and with his family and proposes conjuncted to the name of the Pine Grove furnaces, but there were no new ones built in his vicinity until 1846, when one called the Ohio was put up which had a capacity of from 10 to 12 tons daily.

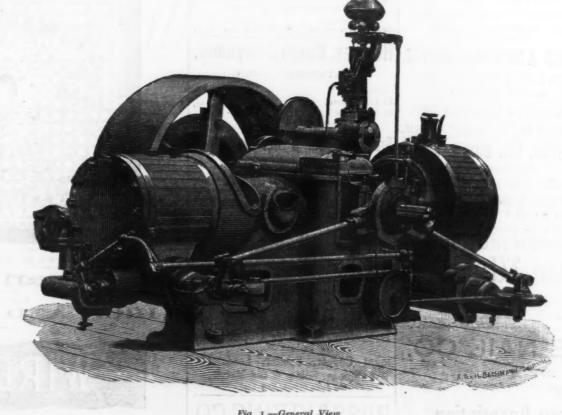
Mr. Means enlarged the Union to the same vicinity where possessions there, and with his family and negroes emigrated to the nearest point where he could set them free. In 1826 John Means built a charcoal furnace near his home, and began the manufacture of pig iron. The Union—as he named it—was the iron business between 1837 and 1845 were the most remarkable of any in the history of that industry in this country. Great depression in every kind of manufacturing was followed by a few years of buoyancy, and then the political pendulum swung backward all too soon and many a hopeful industry was destroyed and its enterprising owners ruined. Speaking of those days Mr. Means said:

"When I leased Union corn sold for 12½ cents a bushel, and wheat for from 24 to 26 cents. Wages for competent laborers were only \$10 a month. I made a trip to New Orleans and saw wheat sold there for a quarter of a dollar a bushel and corn on the cob at the same price per barrel. corn on the cob at the same price per barrel. We used only maple sugar in those days and We used only maple sugar in those days and paid for the commonest molasses 32 cents a gallon. Our woolen goods were woven on hand looms. It took 6 yards of calico to make a dress and the material cost half a dollar a yard. There are more people in Ironton now than there were then in the county. We saw no gold, and little silver coin except small pieces. Our circulation was chiefly bills of State banks and those were continually breaking. From 1854 to

coin except small pieces. Our circulation was chiefly bills of State banks and those were continually breaking. From 1854 to 1861 I kept my furnaces going, but sold very little iron, only enough to keep me in ready money. Charcoal iron was then worth from \$10 to \$14 a ton. In 1863 I had an accumulated stock of 16,000 tons. Next year it advanced to \$40, which I thought a fine lift, but in 1864 it netted me \$80 a ton. For eight years before the war nearly all the furnace owners were in debt, but creditors did not distress thew, for they were afraid of iron, the only asset they could get, and so they carried their customers the best they could, hoping all round for better times. We are all right and so is the country, if the fools will quit tariff meddling."

Such was the statement of this venerable gentleman who for more than 50 years was actively identified with the iron industry, first as his father's assistant and later as a large proprietor. During his active years he built six furnaces, in all of which he retains an interest. The changes wrought by protection may be seen in this district to great advantage. Instead of a few small charcoal furnaces there are now a great number, most of which were constructed during or immediately after the war. There are also great coke blast furnaces, using in all 46 stacks, with an output when in full operation of 2905 tons of pig iron a day, or of 898,500 tons for 300 working days. To produce this they require 1,797,000 tons of ore and 1,123,000 tons coke, a quantity of fuel and ore that would require 24 trains of 20 cars each every day of the 300 to keep up their supply. This in addition to the ore requirements of the 40 or more charcoal furnaces are running to their full capacity, and, until recently, many of using furnaces are running to their full capacity, and, until recently, many of of them were standing idle. Mr John of them were standing top. In commentary maker and president of the Asbland Coal and Iron Railway Company, explained the reasons for this stagnation. These were, in brief, the giving out of the local supply of high-grade hematite ores, the low price which iron has commanded for several years, and the cost of bringing coke and ore years, and the cost of bringing cost and ore to the furnaces. They could not compete with Chattanooga, Birmingham and Pitts-burgh in making high-grade pig. Latterly they have been using a peculiar soft ore found in this vicinity which makes an iron similar to Scotch pig and used for the same purposes. Formerly they bought the Marquette, Lake Superior, ore, but the cost of transportation is too great for its profitable employment, when prices are as low as they

have been of late. This gentleman and Mr. John Russell. president of the Norton Iron Works, state that all the iron men of the district were awaiting anxiously the extension of the Chatteroi Railroad to the coal beds of the Big Sandy and Southwestern Virginia, and to a junction with the narrow-gauge rail-road that carries the Bessemer ores from Cranberry, N. C., to Johnson City, Tenn.



1.-General View

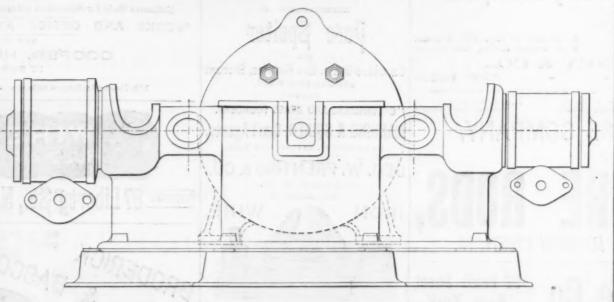


Fig. 2.-Elevation Showing Arrangement of Cylinders, Frame, &c.

A NEW FOREIGN HIGH-SPEED COMPOUND ENGINE FOR ELECTRIC LIGHTING.

enough over the boiler plates to injure them, as not more than 600° is admissible where

water is in contact and the fire is the hot

end of the boiler, with its upper edge or face following around the curve of the shell and about 5½ inches from it. This secondary bridge wall makes a sharp draft just at this point, and tends to hold the flame and gases well together in a solid sheet, keeping them close to the shell. The rear outer wall of the setting should be 12 inches thick, with an inner surface 18 inches from the end of the boiler. It is just a plain wall of common brick containing a cast iron door through which to remove ashes; this wall used the space between the walls is filled in with sand, or a brick arch covering the boiler is placed between the walls; the brick arch is much to be preferred, suitable provision being made for reaching the manhole in top of boiler.

The bridge wall should be about 20 inches thick, the upper face and that toward the furnace and above the grates being laid with fire-brick. A very good kind of bridge wall is wall we carrying the wall right up to the irren plate forming the ton of the rear smoke or the same the secondary bridge wall being carried in against the shell just below the water line, and then continued straight up to the light of the side walls. Sometimes instead of an irren plate formings the top of the rear smoke iron plate forming the top of the rear smoke box, a half arch is thrown from the rear outer wall over against the rear boiler head; but the practical results are the same

In the discussion which followed it was held that the foundation and side wall were too light for most economical practice. It was recommended that the foundation be built solid throughout, extending at least 3 inches beyond the outside of the walls— both sides and ends—to prevent unequal bricks thick above that: the outside or red

settling. The side walls up to the fire-brick line should be at least 26 inches or three brick wall, 13 inches or a brick and a half, and the fire wall 9 inches, instead of 41/2, with a 4-inch air space between. Instead of "racking in" the side wall to the boiler it was preferred to close with tile made for that purpose. The "secondary bridge-wall" was objected to as having a tendency rather to check the draft and create a counter-current or eddy in the combustion chamber.

Until 1776 cotton spinning was performed

should be 12 to 13 inches above the shell. first iron furnace north of the Ohio in this He thought that there could not be heat district, in which there are now nearly threescore, and, although built 4 miles from Hanging Rock, its product was known that name, which eventually was extended to this entire iron region which lies in the three States of Kentucky, Ohio and West Virginia, and is fully 100 miles in diameter. Hanging Rock proper was the shipping point on the Ohio River then and for years afterward, and this doubtless was the chief reason for the adoption of that name.

In Ashland your correspondent met Mr. Thomas W. Means, a son of the pioneer furnace-builder. This gentleman, now 83 years old, has a vivid recollection of those with enthusiasm of the prosperity that began when the Whigs got into power and restored protection, and with much earnestness he describes the disasters that followed the mischievous legislation of President Polk's period, and the long, hard struggle the iron men had until the first Republican Congress put protection into the tariff again.

This venerable gentleman talks of what he

Metal is now being substituted in England years old, has a vivid recollection of those early times, and of the hardships which all is known as the "British Pellisfort" bindwho made iron had to endure because of free-trade tendencies and laws. He speaks

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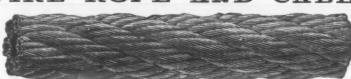
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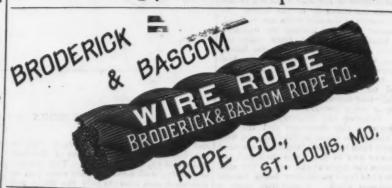
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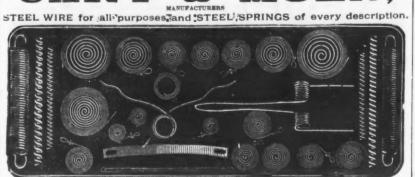
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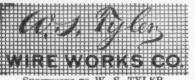


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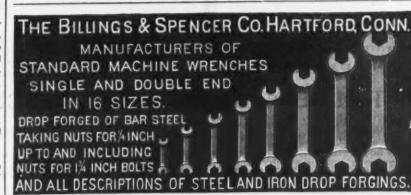
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It is well known that with increase of pressure the degree of heat necessary to boil water becomes greater, the increase growing smaller with each increment of pressure. The appended table giving the boiling points of water under different pressures approximately up to 20 may prove convenient

No. of		No. of	
Atmos-	Boiling point	Atmos-	Boiling point
pheres.	of water.	pheres.	of water.
1	212° F.	11	351.2° F
2	249.5° F.	12	371.1° F.
8	273.3° F.	13	377.8° F.
4	291.2° F.	14	384° F.
5	306° F.	15	890° F.
6	318.2° F.	16	895° F.
7	329.6° F.	17	400.8 F.
8	839.5° F.	18	405.9° F.
9	844.8° F.	19	410.8° F.
10	356.6° F.	200	415.4° F.

Filtration of Water.

At a recent meeting of the German Con gress of Naturalists and Physicians, Dr. Plagge read a memoir on the filtration of water, in which, according to the Chemiker Zeitung, he argued that the essential task of filtration is to free water from infectious matters. As such matters consist chiefly of bacteria the value of a filter must be judged according to the efficacy in the destruction or removal of the bacteria present in the water. The distinction of the bacteria into pathogenous and non-pathogenous is here unimportant, since a filter which allows the non-pathogenous germs to pass will not keep back those which are pathogenous, while, on the other hand, we are justified in assuming that a filter which keeps back all other bac that a litter which keeps back all other bac-teria will give protection against infectious matters. Most of the ordinary domestic filters, and especially those containing as their material spongy iron, carbon, stone, gravel and cellulose, do not—according to the author's observations—come up to the graver and celulose, do not—according to the author's observations—come up to the above requirement. On the contrary, there is generally found a marked increase of organisms in the filtering material. Experiments made with pure cultures of typhus and cholera prove that such filters allow these infectious matters to pass without hindrance. Better results were obtained with clay and asbestos filters of different constructions (Chamberland, Breyer, Olschewsky, Arnold and Schirmer), as for a certain time they yielded water perfectly free from germs. However, it was not found practicable with any of these apparatus to obtain water perfectly free from microbia. According to Hesse, asbestos strongly compressed, and especially dense cells of clay, form a filtering material which yields water permanently germ free. On yields water permanently germ free. On this point the author is for the present un-able to decide, since these apparatus have not been produced for practice, and he has not been able to procure such.

New Uses for Hydrogen Peroxide. Hydrogen peroxide, remarks Industries, of London, is now a commercial product, and is in use in many of the arts as an oxidizing and reducing agent. Thus it can oxidizing and reducing agent. Thus it can be used for decolorizing solutions of many vegetable coloring matters, such as indigo in the presence of sulphate of iron, and a dilute aqueous solution has been in the market for some years for changing the color of the hair to golden yellow. A solution of chromic acid, as is well known, is oxidized at first to an unstable blue perchromic acid; but if the action be prolonged, this higher oxide is finally reduced to chromic sesquioxide. It has also been tried as a beer preservative, but with-out much success. The experiments were conducted with flasks of beer sent to New York and back in the steamship Fulda. It was found that after three days two It was found that after three days two flasks which had not been treated with the hydrogen peroxide, had become cloudy, while the flasks containing quantities of hydrogen peroxide, varying from 3 to 10 c. cm., remained bright in color and transparent to the end of the voyage, which lasted about a month. In other experiments, the addition of hydrogen peroxide changed the taste of the beer to a flavor of rum, and under the microscope, living yeast cells and albumen were discovered in considerable quantities. One of the most interesting applications of the use of hydrogen peroxide to the arts is that of bleaching ivory and bone before dyeing. The articles to be treated are first carefully cleaned from all grease and fatty matters with ether or benzine, and are then immersed in a bath of hydrogen peroxide solution diluted with an equal volume of water. This treatment removes all stains, and leaves the bone or ivory in a state ready for dyeing. Recently, also, hydrogen peroxide has been used by Löbner for bleaching wool. The wool, from which the grease has previously been removed, is well washed, and is then placed for 30 to 40 minutes in a bath of complaced for 30 to 40 minutes in a bath of commercial hydrogen peroxide, diluted with 10 parts of water. The bleaching takes some time to finish, and continues until the wool is dry. To allow the hydrogen peroxide to exert as much bleaching action as is possible, it is found advisable to allow the wool to dry as alowly as possible after it is taken out of the bath. The author recommends the addition of a small quantity of indigo carmine to the bath when pure whites are desired. Hydrogen peroxide for bleaching purposes is most conveniently prepared from calcium peroxide by treatment with a dilute mineral acid.

A method for obtaining calcium peroxide

A method for obtaining calcium peroxide has recently been patented and worked by Mond, so that this compound can be obtained in commercial quantities if a greater demand for it should arise. The process consists in making an intimate mixture of baring carbonete, sawdust, and pitch into consists in making an intimate invitation of barium carbonate, sawdust, and pitch into blocks, and, when dried, introducing them into a cupola, which can be heated to temperatures above 100° C. In this way barium oxide at a high temperature is obtained, and as it descends it meets a current of air, which cools it to about 500° C., at which temperature it hering to take up oxygen temperature it begins to take up oxygen and becomes converted into barium peroxide. This is next suspended in water, and car-bonic acid under pressure is introduced, forming barium carbonate and hydrogen peroxide. The barium carbonate is used

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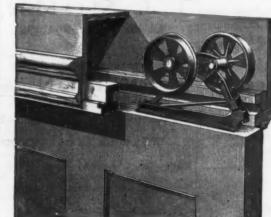
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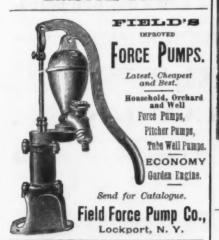
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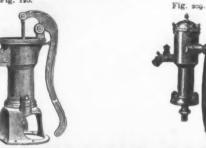
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EDGE Coopers', Carpenters' and Ship Tools, Plane Irons, Cleavers, &c. Full Line Chisels. carbonic acid, is then passed over the baryta heated to about 500° C. A bleaching solu-tion is then obtained from the peroxide thus produced, by dissolving it in water which has been rendered slightly acid. Although hydrogen peroxide is such an energetic oxidizing agent, experiments which have been made to determine whether it can be used as a substitute for chlorine or bleaching powder in bleaching vegetable fibers, have shown that it decolorizes these substances too slowly for any commercial purposes. Some chemists are of opinion that available chlorine only, and not oxygen, effects the bleaching of vegetable tissues, and, if this be so, then the use of hydrogen peroxide as a bleaching agent will be restricted to animal substances, as in the wethods above mentioned. English Letter.

 $(From\ Our\ Regular\ Corresponde, t,)$ London, December 27, 1886

THE CHRISTMAS HOLIDAYS

are now in full swing, this being a Bank holiday as by statute established and the time-honored Boxing Day in Loudon. Under these circumstances I have very little indeed to tell you of current trade affairs. Everybody is discussing turkey and plum pudding instead of the markets, and there will be very little business indeed done dur-ing the remaining few days of 1886 except balancing books and stock-taking. So far as can be ascertained the general tone of the iron market is steadily firm and hopeful,

production, stocks, shipments, &c., is being awaited with much interest in all branches of the iron trade. Pending the actual figures, most of which will not be ascertained

Total production, six months	Tons, 8,100,000 2,480,000
Making available	5,590,000 8,900,000

Leaving stocks, December 31, 1886... 1,680,000 In this estimate, account is taken of the fact that the production in the first half of the year was 3,536,774 tons, while the con-sumption was 3,706,256 tons. If this esti-mate were correct the result, as the Ironmonger says, would indeed be startling, for it would mean a reduction in the stocks of 672,000 tons during the year. A second estimate deals with the reserve stocks chiefly, as a means of checking the previous calculation. The known stocks amount to 1,626,000 tons, besides which the Ironmonger estimates the unknown quantities in makers' own yards at 652,000 tons, making a total of 2,278,000 tons or 596,000 tons more than the result of the first estimate. As is pointed out by your contemporary this throws great doubt upon the accuracy of both, consequently a third calculation is gone into on what is palpably a better and closer basis. This is done by ascertaining the average production per furnace in each and every district of the country during 1885, and then working out the production of each district during the second half of 1886, by means of the returns showing the number of furnaces in blast each month. This gives the following results, the figures being approximations only, of course: Fetimated Production Second Half Year, 1886.

П	Latinuses Fronuction Second Liny Tear	2 1000
		Tons.
1	Cumberland	886,92
١	North Wales	16,78
1	Derbyshire and Notts	175,05
1	Glamorganshire	109,450
1	Gloucester, Wilts and Somerset	18 270
1	Lancashire	365,27
ı	Lincolnabire and Lescestershire	110,000
1	Monmouthshire	187,813
1	Northamptonshire	70,680
1	Shropshire	18,68
1	North Staffordsbire	109,050
1	South Staffordshire and Worcestershire	138,556
ı	Yorkshire, Durham and Northumberland	
1	(Cleveland)	.170,740
1	Yorkshire (West Riding)	60,67
1	Scotland	482,480
1		
1	Total	,820,21
ı	* As per actual returns, save for Dec	
1	which is estimated at 188,000 tons.	OM DO
1	WILLIAM CHAILMANCE AT 100,000 TOMS.	
1	Having thus made a close calculat	ion o
	I TIMATURE CRIME TRIBUTE OF CROSS CRICALIES	ratural U

the make, the situation is summarized as under: Making available umption, six months....

Leaving stocks, December 31, 1886...1,900,216 According to this method the stocks are made out to be 220,000 tons more than in the first instance, but 378,000 tons less than in the second estimate. Bearing in mind the increased exports of the six months and other circumstances, the Ironmonger be-lieves the third estimate is not far from the truth, consequently the assumption is that stocks are about 1,900,000 tons or about 450,000 tons less than those at the end of 1885. The second estimate, I may add from my own information, places Scotch makers' stocks at 300,000 instead of 342,000 tons. On the whole I should think the stocks are about 1,900,000 to 2,000,000 tons in the aggregate.

THE IRON MARKET

over again, and, by the addition of milk of lime to the solution, calcium peroxide is formed. This calcium peroxide contains 7.4 per cent. of available oxygen, which is equivalent to 32.8 per cent. of available chlorine. In France, barium peroxide is now being manufactured on a large scale. now being manufactured on a large scale, and is obtained by M. Brin Frères in their condition has ruled at last week's rate of apparatus for obtaining oxygen and nitrogen from the atmosphere. According to a recent English patent, M. Brin prepares than 34/or a shade better have been taken for the first few weeks of the new year. On the rants have been steady at about 44/, closing than 34/ or a shade better have been taken for the first few weeks of the new year. On the then pumping out any oxides of nitrogen which may be left. Oxygen or air, under pressure and carefully dried and freed from the tendency being decidedly upward. In galness has been relatively satisfuctory, the tendency being decidedly upward. In galvanized and plain sheets, in bars, hoops, nailrods and other finished departments, transactions have been fairly good, the number being rather small but at advanced prices. The better brands are in greater request for next year's early delivery, and in the case of best bars, particularly higher prices will, it is believed, be obtainable. In scrap iron, old rails, &c., an excellent business has been done at advanced rates, the supply of old done at advanced rates, the supply of old double headed rails having again fallen below the demand. For both double-headed below the demand. For both double-headed and flange rails 65/@ 67/6 are now quoted, and 45/@ 50/ for No. 1 heavy wrought scrap. Old cast iron and boiler tubes are about the same. Freights for pig iron by ordinary steamer from Glasgow to New York now rule much firmer at 10/? ton. Steel still rules firm, and inquiries for the period of the year are fully up to the expectations excited by the recent movement.
Actual business done during the week has been naturally limited, a remark that may be also applied to transactions in blooms and billets for the United States. Prices for these latter, however, are stiff and show no immediate sign of weakening. The Indian States railways are inviting tenders for 350,000 steel sleepers, which when let will materially assist this department: for undoubtedly it may be described as the slackest of all the departments of the steel works Steel rails have excited an unusual attention since Tuesday last owing to the Victorian Government having placed their order for 50,000 tons of rails and fish plates. The competition for the order was reduced to the mildest c nditions owing to the stringent specifications, with the result that through the general disposition being in favor of a fair turnover and probably higher selling prices early in the new year.

The issue of the annual statistics as to tract is about £257,600, which leaves an all-round price of something like £5—posaibly a fraction less—delivered at Melbourne. For or the front trade. Fending the actual figures, most of which will not be ascertained for some time to come, the Ironmonger of December 25 publishes several estimates relative to the make of pig iron during the latter half of 1886, and of the stocks at the end of the year. One of these estimates is a sunder. penses, profits, &c., but the secret of the whole business lies in the freight, which is to be exceptionally low. Another contract that has been placed during the week is the 4000 tons of 50 pound section for the South Indian Railway Company. This is understood to have been taken by the Darlington Iron and Steel Company, Limited, at £3. 18/6 f.o.b.
Middlesboro'. The only inquiry of importance now out is one by the Indian States
Railways for 8970 tons of 41¹/₄-pound section
and 247 tons of fish plates. SCOTCH PIG IRON

was rather sensitive on closing before the holidays, pending the issue of the annual returns as to stocks, but the week as a whole was characterized by strength and good prospects. Several furnaces have been restarted lately, so that there are now 74 furnaces in blast, as against 92 a year ago. In Connal's stores there are 840,260 tons (a reduction of 20 tons on the week), against 666,000 tons this date 1885. In makers' own yards stocks are 342,718 tons, against 384,yards stocks are 342,715 tons, against 304,995 tons a year since. Shipments to date
are 381,806 tons, against 434,000 tons in
1885. A few days hence we shall have the
exact figures for the year. Current prices

re:											
Deliverab	le along	sid	e.							No. 1.	No. 3.
lartsberrie,	at Glasg	OW					 			49.6	44/6
Coltness.	8.0									58/	45/
angloan.	4.6									49.6	44/6
ummer!ee.	6.6	0 0								52.6	44/6
Calder	4.6									465 150	44/
Carnbroe,	0 -									46/	42/
lyde.	4.0									46/6	42/
fonkland.	6.6									4.6.65	40/6
lovan, at Bro	omielas	W							ì	44/9	40/6
hotts, at Lei										47/6	45/
arron, at G	rangem	ou	th	1.					Ī	46/6	48/6
llengarpock,											48.6
Eglinton,	4	8		_						44.6	40 / 6
The state of the state of		6				-		-		45.0	41 (6)

MIDDLESBORO' PIG IRON

is firm at late figures, but as all ore markets are closed at the moment. I cannot do more than repeat last week's quotations.

HEMATITE PIG IRON

is steady on the basis of about 45/ for mixed lots of Nos. 1, 2 and 3, in usual proportions,

while West Co	oast brai	ids are	as below	0
		No. 1	No. 2.	No. 3
Cleator		. 47/6		46/
Lonsdale			45,6	45/
Workington		46/	45/6	45/
Lowther			45/6	45/
Distington		46/	45/6	45/
Solway			45/6	45/
Maryport		. 46/	45, 6	45/
Harrington.		. 46/6	46/	45/

There are now 47 furnaces blowing on the West Coast, against 40 a year ago. in stores only are 127.716 tons, an increase of 28.549 tons this year. Pig iron shipments from West Cumberland ports have increased by 25,560 tons to 503,424 tons, and of steel rails by 85,962 tons to 350,798 tons during the year up to December 18.

TIN PLATES.

In London there has been very little change in the market, but if anything there is a stronger feeling abroad among makers, because of the substantial reduction of the output, owing to the stoppage of so many mills and the better inquiry for plates on the part of American and other buyers. There has, however, not been very much business done during the week, and I quote ordinary IC cokes f.o.b. Liverpool about 13/. At Liverpool there has been more inquiry, and for larger quantities than have been experienced for a long time past. The bulk of the business done has been in coke time and Bessemer as well as Siemens steel plates with has maintained the firmness it has now coke tinning. The general run of the former hown for several weeks. The present firmage are still 13/IC, while Bessemer steel cokes are



McCAFFREY & BRO.,

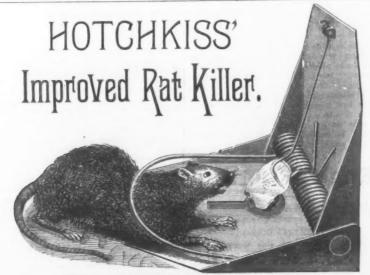
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East Wilton, Sept. 1, 1886.

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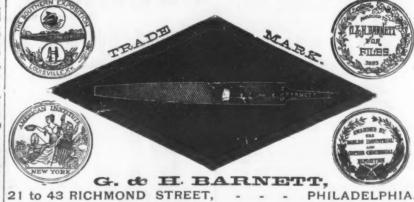
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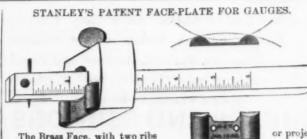
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SIX REGULAR SIZES IN STOCK. CABOT COMPANY, Chicopee, Mass.

13/3, 13/6 and 13/9 IC. The latter, however, are for exceptional brands. Coke tins in special sizes are also 13/3 @ 13/6 IC. Siemens steels with coke finish command better prices at from 12/9 to 14/3 IC. There are some large inquiries for these in varied specifications in the market, and better prices should be obtained. There is a revival of interest in terne plates. Prices, however, are being rushed up too rapidly, 13/@ at 13/6 IC are paid, but the quotations are now 14/@ 14/6 IC, though there is not much chance of business at these figures just yet. The improvement does not extend so much to charcoal tin plates, the demand for which is but light and with little improvement in prices. Coke tin washers are in good demand, prices ranging from 12/3 to 12/9. The tone of the market is good, with a strong upward tendency.

THE HARDWARE TRADES.

In London as regards the home trade there is, of course, little doing at the moment there is, of course, little doing at the moment among retailers either in London or the home counties in the way of new purchases, but they have by all accounts been doing a tolerably satisfactory business in view of Christmas. The general furnishing branch, however, has remained rather quiet. A fairly good demand has been experienced for cheap chandeliers, hall lanterns, gas brackets and other lighting appliances, but as a rule the run has been on pliances, but as a rule the run has been on such articles as afford but very little scope for more than a merely nominal profit.
The export trade remains pretty much as it
was at the opening of the month, but
relatively only a few orders have been
placed, as merchants do not as a rule care about, placing orders so near the holidays and the end of the quarter. At Birmingham, "winding up for Christmas" was the stock answer last week both with merchants and manufacturers to all inquiries respecting their business. Sufficient for the day they think is the business thereof, and the fu-ture must take care of itself. In many cases, however, the future is full of promise, and in not a few the orders on hand insure tolerably full employment for the first few weeks in the new year. By that time it is hoped that merchants will be able to make a substantial addition to the business in hand from the indents which they are now re-ceiving. Some of these are reported to be ceiving. Some of these are reported to be very satisfactory, more especially those arriving from the Australian Colonies, the Cape and the United States. Continental trade still lags behind expectation even in Spain. At Sheffield, in most of the branches more is doing than at this time last year. Prices continue low, but there is generally a sound tone in the market which encourages manufacturers to be content with small manufacturers to be content with small profits. Some firms have been able to move the stocks which have accumulated during the prolonged dull times, and if the revival goes on in the new year there will be much more cheerful prospects for workmen. From several sources I hear that the steel exports are increasing, and particularly that a sat-isfactory improvement in the United States demand for Sheffield steel has been well sustained. The partial revival of the South
African trade is confirmed as regards the
demand for tools and implements of various
descriptions. Cutlery and plate works are still kept up by continued good orders. There are also encouraging indications of briskness in the heavy trades with the new year, for in some quarters the policy of holding off has been pursued until it is not possible to hold off any longer.

possible to hold off any longer.

The Calera, Ala., Charcoal and Furnace Company began operations on the 27th ult. The buildings include the alcohol works, the boiler and pump houses, carpenter and blacksmith houses, the storehouse and kilns, all of which have just been completed and cover 30 acres of ground. The company are working under Pierce's patent, owned by the Standard Charcoal Iron and Chemical Company, of Nashville. They manufacture charcoal, wood alcohol, acetate of lime and iron. They have 50 charcoal kilns und employ annually 60,000 cords of wood. The alcohol building is 60 x 120 feet in size, and there are 150 stills where the alcohol is condensed. They make 50 bushels of charcoal and 3 gallons of alcohol from a cord of wood, and employ 120 hands. The works are located on the East Tennessee, Virginia and Georgia Railroad, near the intersection of the Louisville and Nashville, between Birmingham and Montgomery. The Gibers of the company are J. W. Dimmick, of Montgomery, treasurer; H. M. Pierce, of Nashville, general manager. The capital stock is \$150,000. This is the second now in operation of 10 that are either building or are to be built at an early day.

An interesting phase of early rail manufacture was the gradual increase in the length of the rails laid down. Before 1850 it is probable that very few, if any, rails exceeding 18 feet in length had been laid the langth of the lacks and the langth of the lacks as a proposition of the proposition of the lacks and the langth of the lacks as a proposition of the proposition of the lacks and the langth of the lacks as a strength of the lacks and the langth of the la

An interesting phase of early rail manufacture was the gradual increase in the length of the rails laid down. Before 1850 it is probable that very few, if any, rails exceeding 18 feet in length had been laid down in this country, and the length of the rails for which most of the new orders were given was 15 feet. No 20-foot T rails were rolled in the United States before 1855, and even at that time there was no current de-mand for them. The rail, like everything else connected with the railroad, grew gradelse connected with the railroad, grew grad-ually, there being distinct epochs of growth from 3 or 4 feet rails up to rails 9 feet long, and subsequently to 15 or 18 feet and even greater lengths. But in or shortly before 1850 the prevailing standard for new rails more closely approximated 15 feet than any other standard. The weight per yard on new rails on important lines was increasing. This tendency is represented by the state-ment that the rails in use on the Reading railroad in 1849 were of 45, 52, 53 and 60 bank pounds to the yard, being 3856 tons of 46 pounds, which had been down 12 years;

Experiment has shown that when an explosive mixture is burnt in a cylinder of a gas engine very nearly half the total heat developed by the gas is lost by coming in contact with the wall of the cylinder.

A 5,000 developed his hovels are also experted extensively to South America, and have succeeded in almost totally supplanting the clumsier English shovels in the British colonies of Australia.

Foreign Markets.

FRANCE.

FRANCE.

PARIS. December 31, 1886.—Metals.—As was to be expected so near the holidays, the week has been a very dull one in the metal trade at ill-sustained figures so far as Tin and Spelter are concerned, while Copper and Lead have remained steady. We quote at the close in francs § 100 kg. Copper.—Chili Bars, 101 @ 103.75; Ingots and Slabs, 107.50; Best Selected, 111. and Pure Corcoro Ore, 105. Tin—Banca, 271.50; Billiton, 270.50; Straits, 287.50; Australian, 270.50 and English, 207.59; Lead, 32.25 @ 33.25, and Spelter, 38.50 @ 39. Iron.—The market for Finished Iron remains languid at St. Dizier, but there is a pressing inquiry for Nails, Shoe Nails in particular, and as wages had been reduced 40 g during dull times, they will have to be raised from 24 francs to 6 francs § 100 kg., If the orders dropping in are to be filled, nail-makers having no stock on hand. At Valenciennes the situation has vastly improved compared with what it was a veer sure. Compared with what it was a veer sure. Miled, finite makers having no stock on hand. At Valenciennes the situation has vastly improved compared with what it was a year since. Considerable business has been done in Finished Iron, for delivery during the first quarter of the new year, at prices still comparatively low: thus Common Sheets do not bring over 15 @ 15.50 francs \$\mathbb{R}\$ 100 kg.—Moniteur des Intérêts Matériels

BELGIUM.

BRUSSELS, December 31, 1886—Iron.—The Iron trade in this city remains in good shape so far as Merchant, Sheets and Beams are concerned, but there is a lack of orders in machine shops since the last Government adjudication for Railroad Material for the branch railways. Meanwhile Pig Iron is well held. Advices from Charlerol are very favorable; Structural Iron works are busier, and machine shops are filling Government orders. The export demand is also on the increase, with considerable inquiry for Beams, but makers are cautious in fixing a price for deliveries extending far into the coming year. A good many export orders are arriving direct instead of through English commission houses. Our makers are well prepared, both as regards cheapness and good quality. At Liege orders have multiplied during the week; the Sclessin Company alone received 10,000 tons commands for small Iron. The stock of Coul has decreased considerably in the Hainaut basin, and a severe winter would inevitably cause quite a rise.—Moniteur Industriel.

GERMANY.

Hamburg, December 31, 1885,—Iron.—The improvement in the Iron and Steel trades in Rhenish Westphalia has made notable headway during the last week of the year; it has almost the appearance of being too precipitate in some articles. The chief impulse has come from the United States, whence for a couple of months past there has been a demand for German makes growing from week to week. This American demand centered on Spiegel, Wire Rods and Old Rails in particular, all of which had declined to a very low level, so that during the period of stagnation which had preceded this Transatlantic demand Wire Rod makers had curtailed their output considerably, but have now resumed it to their full capacity. Steel and Thomas works have of course been benefited by this movement. Meanwhile Frederick Krupp, Essen, made a contract with Messrs, Gibbs, Bright & Co, Melbourne, to deliver the Government of Victoria 50,430 tons of Steel Rails for the State railways there. Throughout the Steel and Iron branch the tendency of prices is now upward, almost without excepting a single article. The syndicate has raised the price of Forge Pig 2 marks \$\pi\$ ton; stocks rapidly dwindling down and a further advance impends. Foundry Pig has not improved quite as much, but the range is now 47.50 @ 32 marks. Bessemer follows snit, but slowly. Luxembourg Forge is higher. Rolling mills are loaded down with work, and the advance of the previous week is upheld. Boiler and other Sheets are steady. There is an active demand for Thin Sheets, Siegen now quoting these all the way to 130 marks. There is no further change in Wire Rods nor in Railroad Material, but we are apparently on the eve of a further advance. Car works are again fully booked through late adjudications, but at figures not quite to their satisfaction. Machine shops and foundries might be busier than they are. Metala.—Lead, without much doing, is well held. Copper la weaker. Speiter firm.—Borsenhalle. GERMANY.

HOLLAND.

ROTTERDAM. December 28. 1886.—Tin—There has been an uninterrupted decline in the market, prices having given way 1½ guilders the 10 kilos for the week, with a better feeling and slight recovery toward the close, Banca spot being quoted 60.30 and 60.75 deliverable from the next sale, while spot Billiton is worth 60.87% and March delivery 60.82%.—Koch & Viterboom.

SPAIN.

VIENKA. December 25, 1886.—Iron.—Only a moderate business has been transacted in Pig and Finished at well-sustained figures. The demand for Hollow and Enameled Ware continues unabated. We quote at the close, in floring \$\psi\$ ton at Vienna; Pig, 40 @ 49; Merchant, 98 @ 122.50; Sheets, 115 @ 175, and Beams, 105 @ 110. Metals—Have been more active, but irregular. We quote: Copper, 54.50 @ 58 florins \$\psi\$ 100 kg; Lead, 17.50; Spelter, 18.30; Tin, 129 @ 130; Antimony, 35.50, and Quick-silver, 296.50.—Handels-Journal.

EAST INDIES.

EAST INDIES.

PENANG, November 30, 1886.—Tin.—Our market has ruled firm within the range of \$34.05 \$34.824 \$4 picul, closing at \$34.80. Receipts for the fortught amounted to 9000 piculs, of which Europeans took \$400 and Chinese \$600, to which 1400 piculs were added, taken by the latter from Bazar. Total snipments to England so far this year, 136,716 piculs, against 133,551 during the first 11 months of last year. Exchange, four months' bank on London, \$444.—Schmidt, Kustermann & Co.

pounds to the yang pounds, which had been down 12 years; 777 tons of 52 pounds, which had been down eight years; 777 tons of 53 pounds, which had been down seven years, and 7992 tons of 60 pounds, which had been down one to six years.

The shovel trade, of Pittsburgh, is one of the branches of business which has benefited, especially by the laying of natural of trade. The product in 1886 is estimated at 45,000 dozen as compared with 35,000 dozen in 1885. Pittsburgh shovels are also

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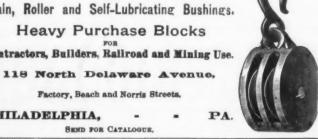
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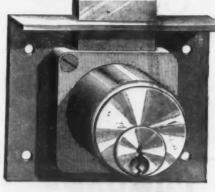
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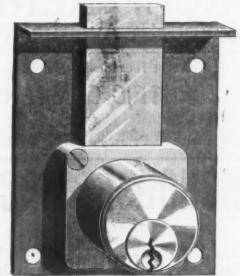
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PHILADELPHIA. BOSTON,

15 North Sixth St. 224 Franklin St. THE WEEK.

The seven naval engineers composing the special Board on National Ordance Plant have completed an inspection of the iron and steel mills in Pittsburgh to ascertain the cost of machinery with reference to the erection of a plant in the Washington Navy Yard for furnishing heavy guns. board is composed of Lieut. C. A. Bradley, Commander A. H. McCormick, Lieutenant Hemphill, A. C. Menocor, James R. Street and Capt. R. D. Evans. It is intended to have the plant in the navy yard completed in two years. It will be of sufficient capacity to finish guns 16 inches in diameter, 45 feet in length and weighing about 100 tons. This will be the largest gun made. The members of the board are familiar with the arguments presented in making steelcast guns instead of the Krupp pattern. Captain Evans favors the steel cast gun, and says the Government, sooner or later, will be forced to try the experiment. "The Krupp guns," he says, "cost \$1.70 per pound, while the steel cast guns can be made for 20 cents per pound.

The work of transferring the equipment plant from the Washington, Navy Yard to Boston will be completed by February I, and the transer from other yards will take place gradually during the year.

Steel for heavy guns was the subject of an animated discussion by the Naval Institute at Annapolis last week. Mr. Dorsey, R. J. Gatling, of Hartford, Conn.; Prof. R. H. Thurston, of New York; Thomas C. Clark, of New York; Prof. Thomas Egleston, of New York; William H. Brown, of Jersey City, recommended soft steel. Mr. S. J. Welman, of Cleveland, Ohio; Lieutenant Ingersoll, Lieut.-Commander Barber, Commander Folger and others advocated hard

Senator Edmunds reported favorably a bill to incorporate the Maritime Canal Company, of Nicaragua. The bill creates Frederick Billings, Charles P. Daly, Daniel Ammen, Sheppard Homans and their associates a body corporate for the purpose of enjoying all rights contained in any canal concession made to them by Nicaragua or Costa Rica. The bill further provides that the capital stock shall consist of not less than 500,000 or more than 1,000,000 shares of \$10 each, of which 10 per cent. shall be payable at the time of subscription; that the tolls for passage through the canal shall be reasonable and not in excess of \$2.50 per ton of freight; that the United States may exercise such control over the canal as is not inconsistent with treaty obligations; that the privileges granted shall expire unless \$10,000,000 of the capital stock is subscribed for within two years and work actually commenced within four years, and that power to alter, amend or repeal the act shall be reserved to Con-

The Jackson & Foote Mfg. Company, who claimed to possess valuable patents for the ness in Elizabeth a year ago under the presidency of John Tyler, who is said to form of swearing to entries of merchandise. have committed suicide recently under a false name at Norwalk, Conn., with over \$300,000 insurance on his life. John Tayfor, as he was known in Elizabeth, is said to have been an alias. The caterer who fur nished the banquet at the "opening" now sues for \$265.

The introduction of 5-cent fares on the elevated railroads has made serious inroads tion is made in the bill for the improvement upon the receipts of the various surface of New York harbor, although it is possible railroads in this city, more particularly the that items covering that improvement may Third and Sixth avenues. The official figures 325,142,075 passengers. Of this number the elevated roads carried 115,100,507 and the 17 surface roads 210,032,484. Of this number the Third avenue surface road carried 27,750,000, or 4,250,000 less than during the A large proportion of this falling off is due to the strikes on the road. The Sixth avenue line carried 220,078 passengers less than the year before.

Owing to advance of I cent per pound in the price of raw silk New York manufacturers in the sewing silk and twist trade have resolved to make a corresponding advance in their goods. These two branches repre sent an invested capital of \$30,000,000, and their annual product is estimated at \$60, 000,000, or about one-fourth of the silk product of the United States.

The savings banks of Detroit have on deposit \$15,000,000, an amount never before

A bill introduced into the Ohio Legislature abolishes the piece-price plan for prison labor and provides for the purchase of machinery, so that all convicts may be em-

There are 133 New York and Sandy Hook pilots who own 20 boats. Last year they piloted 614 vessels, receiving for their servces, \$390,529.

An ice embargo quickly follows low water of 30,000 tons this year. on Western rivers, and these natural obstacles, added to railroad competition, operate more than ever to discourage investments in steamboat property.

drawn from the cable pool in which four the deed is connected with the Chicago

companies have hitherto co-operated. They have long been dissatisfied with the reduced rates under the pool arrangement and the small percentage allowed to it, a little over 12 per cent. Will it be allowed to go is now the question.

The machine shops of the Northern Pacific Railroad, at Fargo, Dakota Territory, were burned on Friday. Loss estimated at \$150,000. On Saturday the Ohio Southern Railroad machine and car shops at Springfield, Ohio, caught fire and were destroyd. The loss is \$140,000; fully insuaed.

John Baird, the engineer who designed the elevated railroad structure and other works of magnitude, was declared insane, but now is fully restored, and his property, worth \$400,000, is again placed in his con-

Buenos Ayres advices to November 8, speak of the wool and grain crops as large and remunerative. The grain harvest will be the largest ever known in the Plata.

Karl Polak, a business man in New York, eeks to obtain damages from the owner of a barbed wire fence in Plainfield, N. J., which is alleged to have been the death of a fine colt pastured in an adjacent field. Judge Magie, of the New Jersey Supreme Court, decides that any fence which is likely to injure animals under the circumstances described is an unlawful structure. It is supposed the issue will be contested by the barbed wire fence manufacturers.

The protection of New York harbor by adequate defenses is the subject of an earnest appeal by the New York Chamber of Commerce, who entreat the Government at Washington "to enter upon the work of placing New York harbor in such a condition of military defense as the exigency of the case demands; and that, as parts of such defense which can be made available at an early day, Congress be urged to make at once the necessary appropriations to provide for perfecting for the large seacoast cities systems of torpedo defense and adequate mortar batteries; and that New York, as the chief of such cities, and the great storehouse of the nation's movable wealth, has especial claims for immediate action by Congress for her protection."

The Hoosac Tunnel property was sold by the State of Massachusetts to the Fitchbury Railroad Company.

New discoveries of coal and iron in Southern Arkansas are announced. The coal is described as excellent for steam purposes and the iron is similar to that found in Northern Louisiana. Railroads already projected will soon make it available for manufacturers beyond the Mississippi River.

Merchants in New York are much interested in the proposed amendment to the Customs Laws designed to provide for the payment of duties by certified checks, and to permit importers to swear to entries before duly authorized notaries. As the law manufacture of hairpins, commenced busi- now stands, it requires importers to personally visit the Custom-House to go through the The law also requires the payment of duties in coin or coin certificates, which processes are claimed to be needlessly embarrassing and onerous.

The grand total of the appropriations made by the River and Harbor bill is \$7,-158,260, while the total of the estimates submitted was \$30,281,749. No appropriabe inserted before the bill is finally acted for the year ending last September, before upon by the House. The committee rethe reduction of fares, show the total city frained from making any appropriation for railway traffic for that period to have been that purpose for the reason that the House Committee on Commerce expects to secure me action by the House sion bill, which contemplates the creation of a commission to supervise the expenditure of money for the improvement of New York harbor upon plans provided by the com-

> The New York Commissioner of Public Works, General Newton, in his annual report, shows that during 1886 the Bureau of Street Improvements excavated 67,388 cubic yards of earth, 141,445 cubic yards of rock, built 19,700 feet of sewer, and cleansed 76, 021 feet of sewer. The Water Register received a total of \$2,460,833, of which \$1,688,792 were from water rates and \$655. 000 from meters. The Croton Aqueduct Bureau laid 25 miles of water mains, and placed in buildings oop meters. The Bureau of Lamps and Gas reports the cost of lighting \$713,126.22. The Bureau of Incumbrances issued 7000 building permits.

A new line of railway recently opened in Canada extending from Kingston to Renfrew is beginning to ship iron ore. Early last year a company of Chicago steel manufacturers and Canadian capitalists had the route of the road thoroughly prospected, and were rewarded by finding large beds of Bessemer ore of an excellent quality. The syndicate shipped last year about 4000 tons, and have already contracted for the delivery

A strike on the San Francisco cable railway was followed by two explosions, apparently designed to destroy the property. A letter bearing a supposed fictitious signa-The French Cable Company have with, ture since received, says the author of

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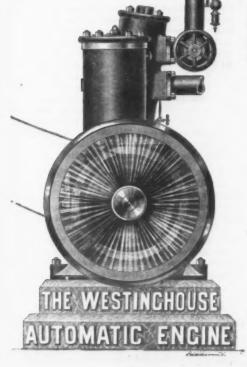
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dynamiters, and that a "series of explosions" may be looked for unless the demands of the strikers are granted. Still later a ture. Decision reserved. "dummy" was blown up.

On the subject of railroad pools Mr. Platt in the Senate last week made an effective speech in defense of the bill which he had labored to perfect and which, he believed, was misunderstood. Traffic contracts, misnamed pools, in his judgment were neither condemned by common law nor opposed to public policy. He quoted from the reports of Mr. Nimmo, formerly chief of the Bureau of Statistics, to show that pooling was merely an apportionment of traffic between roadsengaged incompetitive traffic, and from a pamphlet by Judge Cooley to show that the purpose of pools is to avoid ruinous com petition and unjust discrimination against shippers; and he asked who would believe that in a bill ostensibly for the purpose of preventing unjust discriminations a clause hould be found making that criminal to which railroad companies have resorted to prevent unjust discrimination. He challenged anybody to show that the object, the purpose or the faithful observance of a pool traffic was anything else than the maintenance of stable rates.

The President transmitted to the House of Representatives a letter from the Secretary of State inclosing a mass of statements from consular officers of the customs duties levied by foreign nations upon the produce and manufactures of the United States. In bis letter Secretary Bayard says: "In framing this inquiry only such articles were included as are exported from this country to foreign markets, the design being to show what burdens are imposed upon existing ommerce, and to leave for a future inquiry what hindrances or prohibitions are entirely preventing the sale of American products in competition with the products of other nations. In a future report these tariffs will be considered in detail and their restriction and relatory features pointed out. Upon the importance of this subject at the pres ent time I need hardly dwell. The demand for new markets for American products has become almost imperative, and these markets must be sought among those nations which from fiscal or protective necessity from the need of revenue or the desire of fostering manufacturing industries, have imposed duties upon articles of foreign growth or production which are most onerous and oppressive, not only to the customer, but to the American exporter. A compari-s n between the tariffs herewith presented and that of the United States may point out in what lines an export trade in American products may be built up by a judicious re-modeling of our own tariff."

The rapid growth of Western cities appears strikingly in the fact that last year St. Paul, Minn., expended \$10,000,000 in new buildings, and Minneapolis is not far behind in the race.

Chicago makes an imposing showing of mmercial statistics for the past year. It had smaller receipts of breadstuffs, hogs and lumber. The value of produce was also less, partly because of low prices. On the other hand, wholesale trade and manufactures show a large increase. The total trade of the year was \$997,000,000, being a gain of about 4 per cent.

Several petitions for declaration of bankruptcy against the Monarch Steamship Company have been filed in London, and the everal ships on their arrival in New York are libeled to secure indebtedness.

During 1886 there were 68,742 cabin passengers landed at the port of New York. More than a third of this number were carried by two lines, the Cunard and North German Lloyd. Liverpool shipped the greatest number of passengers, 140,194. Bremen comes next with 56,003, then Hamburg with 45.888, then Glasgow, with 33,954 and Antwerp, with 19,838.

If comparative statistics have any significance, the great building interests on Manhattan Island were never more prosperous than at present. During the year the whole number of new structures erected was 4097. against 3370 in 1885 and 2812 in 1884. The total cost of those planned in the year past excess of that of the year preceding, and \$16,264,230 in 1884. The district between Fifty ninth and 125th streets shows the largest increase.

The Board of Arbitation and Conciliation in Massachusetts has been organized and in operation for about four months, too short a time to fully test its capacity for usefulness, but according to Governor Ames: "It has appeared to act with judgment and discretion in the few cases that have come be-

The statistician of the Pennsylvania coal possible production of the entire anthracite region is about 45,000,000 tons per annum.

A lumber merchant of Hempstead, L. I., sues a number of New York lawyers to re means from eggs is not manufacturing, and anthracite region.

that the business of the defendants was simply the application of science to aid na-

The Chicago Trades Assembly and the labor party organization in that city are now wholly controlled by anarchist influence.

Glassware made at Pittsburgh by the use of natural gas is exquisitely beautiful, and manufacturers are filling orders from various parts of Europe. The designs are also greatly admired.

The New York Mercantile Exchange has appointed a committee to attend the National Food Convention in the interest of legislation against adulterated food, to be held at Washington on the 19th inst.

The shipments of petroleum from Philadelphia for the year 1886 exceeded the year previous by a very small amount, the total exports being 152,641,044 gallons, while in 1885 they amounted to 151,756,812 gallons. The Germans have been the principal consumers of the product, while there has been a general decrease in that part of Europe contiguous to the Russian oil fields. The demand in Java, Samatra, China and Japan bas, however, increased to a large extent, principally for the refined article. This has more than made up for the losses by Russian competition. The French have become large purchasers of the crude article, the refiners in France using all the by-products, even making excellent aniline colors from the higher gases, which are allowed to escape in this country.

A London company have made extensive purchases of bituminous coal lands in Kentucky, and propose to ship 50,000 tons of coal per annum to ports in England. The product is cannel coal of a high grade, capable of making 15,000 cubic feet of 45 candlepower gas per ton, and a regular line for its transportation between New Orleans and Liverpool is contemplated. About 10,000 tons have already been put in the English

The Hebrew Technical Institute, of this city, last year had 83 pupils, and the receipts were \$38,537.

The bill before Congress to reorganize the Navy Department is designed to consolidate the now independent and often corflicting Bureaus of Construction and Equipment, Yards and Docks and Steam Engineering under one head, to be called the Bureau of Material, Construction and Repair, and to create a Bureau of Supplies and Accounts. Its prospects are said to be good.

The Chesepeake and Ohio Canal Company are severely crippled in their finances, and the president in his annual report just published plainly states that the canal can only be maintained through Government aid. One suggestion is that the bed of the canal be used as a railroad to the coal fields. At present the canal is an important channel of coal supply for Baltimore, Georgetown and other shipping points. The shipments of coal to Georgetown last year comprised 239.519 tons; to Williamsport, 53, 325 tons.

The late William C. Kingsley, early identified with the Brooklyn Bridge, predicted that its urmost capacity for accommodating travel would be reached early in the next century, when it would be used by 36,000,-000 people per annum. His calculations have been so far exceeded by the fact that in 1886, or 14 years before the conclusion of the century, the number of persons who crossed the bridge reached the aggregate of 27,436,707, and at the past rate of increase of the traffic, the present maximum carrying capacity will be reached before 1890.

The new Equitable Life Insurance building, now near completion in the lower part of Broadway, is a massive pile of granite pying an acre of ground, is practically fireproof, and forms one of the most imposing structures in the city. The grandest of its features is the broad, spacious and noble central court forming a part of the passageway through the building. It is 100 feet long by 44 feet wide, over which an arched roof of marble and decorated glass is sprung at a hight of 30 feet from the tesselated pavement. The latter is a work of art. is set down at \$58,479.653, or \$12,564,407 in The roof of the court is supported by columns of variegated marbles, with capitals and cornice of onyx and Numidian marble. The court is reached from Broadway by a grand entrance 22 feet wide, and a similar hallway extends through to Nassau street, making an unbroken vista of 300 feet from one street to the other. A great number of shops, carefully selected to meet the requirements of the tenants, will line the spacious passage ways on either side. A wide corridor from the Pine street entrance intersects the grand court in the center. In the court will be grouped ten large hydraulic The elevator shafts passenger elevators. pool, John H. Jones, says the maximum are lined with porcelain-faced brick. The arrangements for heat, water supply and other conveniences are on an elaborate scale.

Professor Gallagher, of Wilkesbarre, who cover the value of lumber sold to them as in his youth was a slate picker, has invented members of a now defunct corporation or a simple contrivages for use at the coal incubating company for "manufacturing breakers which allows slate to drop from a chickens." The plaintiff sues the defendants individually on the ground that the of its greater specific gravity, and it is said company was not legally incorporated, as that the new machine will do away with the the production of chickens by artificial employment of 9000 or more boys in the

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CHATTANOOGA.......Ninth and Carter Streets 8. B. Lowe, Manager.

Our Chicago Editorial Office.

Mr. Geo. W. Cope resigned the secretaryship of the American Iron and Steel Associ ation at the beginning of the year, and has gone to Chicago as Resident Associate Editor of The Iron Age in that city. The desirability of supplementing the efficient services of the manager of our Chicago branch office, Mr. J. K. Hanes, by such an addition to our staff, has been contemplated for some time, and we have waited Mr. Cope's convenience in resigning the important office he has so creditably and successfully filled. It was mutually desired that the change should inconvenience as little as possible the management of the American Iron and Steel Asso ciation, and for this reason Mr. Cope has postponed until now entering upon his new

Mr. Cope's duties will be wholly editorial, and will involve no change in our established branch offices or their management He is a brilliant journalist, with a wide personal acquaintance and an intimate knowledge of the trades represented by The Iron has ever been done in the columns of a trade creased consumptive capabilities of the

agitators who, chiefly for political reasons, for American domestic goods. have created so strong an opposition to will be extended, and there is likely to be a prison labor contracts, sensible people are good demand for American locomotives, beginning to take a more reasonable view of and horse and passenger cars. But the question. We judge this largely by the there are other South American products changing tone of newspaper discussion of which have either risen in value, as india the subject, and by the fact that organized rubber, or of which the crops are labor is manifesting less interest in it now more abundant than they have been for than formerly. In a message to the Michi- years, as cocoa, so that between one article gan Legislature on his retirement from and another trade in that direction is likely office, Governor Alger expressed himself to assume proportions this year it has not strongly in favor of the contract system, as had since the sugar planters were prosperthe result of a very careful study of the ous. Wool has also improved some 40 per question, under conditions calculated to give cent., so that the La Plata States would also him a practical acquaintance with the facts be capable of absorbing greater amounts of of the case. There is little reason to doubt our goods from the very outset of the new that Governor Alger is a good deal nearer year if the cholera epidemic were not raging the truth now than he has been before. so fiercely in that region. After the sum-The contract system is liable to abuse, but mer months shall have passed by in those so is any other system. It needs to be sure latitudes, coinciding as they do with our become greater, except to Chili, Peru and rounded by proper safeguards, but when winter, the cholera epidemic is likely to dis- the La Plata States, the advance in coffee and in the world, we find the following: this is done it remains absolutely the fairest appear, and the Argentine Republic and other products having led to more frequent December, 1888, to February, 1888, with Coal

the labor will command its market value, which will be more or less, according to the profits of the contractors. The prison regu lations can effectively protect the prisoners against injustice or overwork, and in every instance we know of they have done so. No other system competes so lightly with as eager as other manufacturers for all the profit they can make, and have no inducement to make goods which they cannot sell at a profit. New York and Ohio have made mistakes in abandoning the contract system and adopting the State account system, and it will not be long before they will abandon it and return to the contract system as the easiest, cheapest and generally most satisfactory solution of the problem

Imports of Iron and Steel for Eleven Months.

The import statistics reflect the very large growth in the sales of foreign mate rials made for 1886 delivery, as compared with the previous year. The following table summarizes the principal figures for the first eleven months, in gross tons:

Imports of Iron and Steel, Eleven Months.

	, Gross	tons
Articles.	1886.	1865.
Iron ore	954,846	864,659
Pig iron	340,448	180,898
Scrap iron	65,994	11,652
Scrap steel	6,889	1,788
Bariron	26,850	27,728
Iron rails.	6	51
Steel rails	29,648	2,063
Cotton ties	10,217	18,171
Hoop, band and scroll iron	114	92
Steel hoops, bands, strips,		
sheets, &c	3,381	1.889
Steel ingots, blocms, billets, slabs		
and bars	121,600	23,512
Sheet plate and taggers iron	5,707	5,289
Tin plates	239,250	212,642
Wire rods	125,989	82,852
Wire and wire rope	2,251	2,085
Anvils, axles and forgings	825	541
Chains	5.45	501

The heaviest increase, it will be noted was in iron ore, which will slightly exceed 1,000,000 tons. Of pig iron, probably nearly one-half is spiegeleisen. The receipts at the port of New York of the latter, during the whole of 1886, were 104,253 tons, against 47,060 tons in 1885, out of total receipts of pig of all kinds of 199,576 and 85,163 gross tons respectively, during the years men. tioned. This, it will be observed, leaves only a comparatively small quantity for imported Scotch and Bessemer iron. Old material has jumped into prominence during the latter part of the year, the foreign speculators apparently having control of the supply until navigation is opened in many countries abroad, and until the spring re leases considerable quantities in this country. Steel rails are now beginning to arrive at a more rapid rate, close upon 10,000 tons having come to hand during November. Cotton ties are the only item in the list which ingots, blooms, billets, slabs and bars, approximately all but 15,000 tons belong to the cruder form of raw material. In this category, too, belong wire rods, of which we have imported a very heavy quantity. The heavy sales of billets for this year's delivery indicate, however, that unless consump tion of wire is largely increased there will be a falling off in the imports of wire rods. The slightest increase in the receipts of wire and wire rope is of some interest, since manufacturers, and as we understand it, the leading importers of the latter have entered into a severely stringent combination.

Judging roughly from the buying movement of the past two months, the imports during the current year will exceed those even of 1886. In some great trades, as in wire rods, the season for purchases has not

The Outlook for our South American Trade.

The advance in coffee in the New York market from 83% cents fair Rio early in 1886 Age. We consider his acceptance of the to 151/4 cents in January of the current important post to which he is assigned a year, an improvement of over 80 per cent. in cause for congratulation. We invite for a twelvementh, has brought back prosper. management of this journal has always been Brazil, Venezuela, Central America, Hayti, regarded, and trust that from personal con- Jamaica and Porto Rico, while leaving tact with men and happenings in the West, handsome profits to importers, many of he will be able to reflect Western views and whom are permanently engaged in the Western interests more fully and ably than South American shipping trade. The inpeople at large in these countries, in consequence of this great change in a leading After following too long and too far the product, will stimulate the giving of orders Railroads

The only tropical product apparently condemned not to recover in value soon is sugar, but even this staple, low as its value may be, seems to leave a margin of profit to the planters of those countries where improved methods and machinery have been introduced for some years past, and where the labor of citizens, since contractors are the Central Sugar-house system has been adopted on a well-organized scale, as in Cuba, Brazil, British Guiana and Martinique. In Cuba sugar crop prospects were never better; the canes are in splendid condition, yield a high degree of saccharine matter of good quality, and it is estimated that we join Governor Alger in predicting that between 800,000 and 850,000 tons will he secured this year. The reorganization of labor is reported to work well: the freedmen are seemingly content with the still quite liberal wages which planters can afford to pay them. A report from Havana reads as follows:

The new sugar-making system known under the name of "central plantations" is giving a splendid result to all planters who have been able to adopt it. The number of plantations of this class daily increases, absorbing at the same time all the surrounding small ones. Landowners of the demolished estates subdivide it among faymers and small planters, who sell their cane to the central factories at prices which are either paid in money or in manufactured sugar, \$2.50 for 100 pounds centrifugal as an average being generally considered as the equivalent of 2500 pounds of cane after grinding and marketing expenses are deducted. It is calculated that about 35 to 40 per cent. of the coming crop will be manufactured under this system, and that, despite the disappearance of slavery and the financial difficulties under which a large number of planters are laboring, the total production will be larger than the previous one, which was close upon 800,000 tons.

The Southern countries are at present in The new sugar-making system known under the

The Southern countries are at present in a peaceful condition. Several of them have made favorable arrangements with European bondholders, and commenced to pay interest on the newly consolidated indebtedness, like Mexico, Costa Rica and Paraguay. Even Hayti has gradually paid off considerable amounts of debt. Some have made arrangements in Europe for consolidations of the most honorable kind, as, for example Cuba and Chili, others, like Ecuador and the Argentine Republic, have floated new loans abroad with singular success, the latter both national and provincial. Venezuela came to an equitable financial under standing with France, and generally the latest London stock quotations of South American securities exhibit a marked advance compared with what they were worth in January, 1886. New York capitalists have drawn up a series of propositions, submitted to Peruvian bondholders on the one hand and to the Government of Peru on the other, which, if carried through, even in a modified shape, would set that impoverished ountry on its legs once more while notably enefiting American trade in that direction.

The bill to incorporate the "Maritime Canal Company of Nicaragua" has been reshow a notable reduction in imports. Of ported favorably by the Committee on Forsign Relations in our Congress, and there has been left a door open for the enabling act of the Mexican reciprocity treaty to become operative till May next year. Within two years from now the Transandine railway will connect Buenos Ayres and Valparaiso via Mendoza, in Southern Spanish America, and Mexico and Acapulco in Northern Spanish America. All the people there will have to do will be-if they canto lay politics aside and indulge no more in civil troubles. American and European capital and enterprise will be at their disposal if there be the certainty that the era of revolutions is closed. Prospects for a growing domestic export to these countries would be less bright if prices for food, petroleum and manufactures were high. little higher than the quotations of January 1, 1886; some lower.

We have prepared a table of leading articles in this market at three different of some import and export articles in our trade with the countries named, the only domestic product having risen considerably

him the confidence with which the editorial ity to the vast coffee planting interest of Antimony Cook. Jan. 1. Oct. 1. Dec. 81.

Antimony, Cook-			
son's	\$0.936	\$0.936	\$0.936
Coal, anthracite .	8.50	8.75	8.75
Cocoa, Guayaquil	0.16%	0.1334	0.13%
Coffee, fair Rio	0.8%	0.1134	0.14%
Copper, Lake Su-			-
perior	0.1134	0.1134	0.1136
Cotton, middling up-			
lands	0.93-16	0.97-16	0.97-16
Flour, extra state	8.25	8.00	8.75
Wheat.	0.95	0.85	0.95
Indian corn	0.48	0.4656	0.48
Hemp, manilla	0.8	0.8	0.816
Hemp, sisal	0.4	0.5%	0.636
Hides, Buenos	0.8	0.078	0.0/9
	0.22%	0.20%	0.90%
Ayres, dry Hops, choice state	0.1114	0.21	0.26
	0.1178	0.41	0.00
India rubber, fine	0.6116	0.88	0.76
Para		18.75	20.50
iron, American pig.	18.25 34.50	84.50	86.00
Steel rails			
Lead	0.456	0.436	0.434
Spirits of turpen-	0.00	0.001	0.0014
tine	0.38	0.8734	0.8616
Nitrate of soda	0.2%	0.2	0.2
Potatoes	2.00	1.75	1.75
Petroleum, refined	0.7%	0.6%	0.6%
Black pepper	0.16%	0.16	0.17%
Butter	0.82	0.2892	0.27
ard	0.7	0.634	0.7
Sugar, fair refin-			
ing Cuba	0.5%	0.4 11-16	0.456
fallow, city	0.436	0.4	0.436
Tea, Oolong	0.18	0.18	0.20
in, Straits	0.2016	0.2256	0.22
Wool	0.18	0.21	0.28
pelter	0.4%	0.436	0.456
lice, prime domes-	0.078		
tic	0.5%	0.434	0.436
The facilities for			
THE SMCHIETON TO	· amphibus	S Source	march 633

ward from the United States have also and best of all systems for the utilization of Chili will do a business with the outside the labor of prisoners. When the highest world all the greater because partially in-bidder secures the contract it is certain that terrupted.

**Total cost of the utilization of Chili will do a business with the outside the labor of prisoners. When the highest world all the greater because partially in-lowering of freights we are now better able to compete with Europe. In a word, while the Cost per mile in cents—fremen...12.96

elements on which South American trade rests have got into better shape, our means of rendering the intercourse mutually profitable are better than in former years, on a safer and, from all appearances, more lasting basis. The official statistics as they appear during the year will, we feel confident, corroborate these views.

The Latest Steel Specifications of the Navy Department.

A question of much significance has arisen in connection with the steel for the deck armor of the cruisers Newark and Balti-The specifications for the 2-inch plates called for material having a tensile strength of 60,000 pounds and an elongation of not less than 25 per cent., to be determined in test pieces 8 inches long. It was pointed out to Secretary Whitney by steelmakers that these requirements were so severe that they would unduly and unnecessarily enhance the difficulties of manufacture. Yielding to the close reasoning of leading steel-makers, the Secretary gave instructions to the Bureau of Ordnance of the Navy Department to modify them. Commodore Sicard, chief of the bureau, responded by a memorandum in which he puts forward demands which will be far more puzzling to the steel-makers than the famous specifications for former cruisers. The gist of it lies in the following part of his letter, which is dated the 18th ult.

Armor is improved by being of higher tensile strength than ordinary ship plates, and need not show as much elongation as the latter, while at the same time a certain amount of that quality is necessary. In view of the fact that as no deck armor proper has been heretofore rolled in this country, the difficulties of producing the most de-sirable qualities will be very considerable, and the bureau has drawn up the following table, in which the characteristics for each grade of plate has been made as low as practicable, and it is considered that any material which will show such qualities (on specimens having a proportion of length to diameter as 4 to 1), would be satisfactory for the purposes in view; but for the present only

*		
ensile strength,		Elongation,
pounds.		per cent.
60,000		25
65,000		34
70,000		23
75,000		21
80,000		19
85,000		16
90,000		12
la masommandad	that	the manufacturer

allowed to select from this table the characteristics which they will guarantee, remembering that these are the minimum to be allowed, and that the elongation in each case must not be less than that elongation in each case must not be less than that set opposite the tensile strength. The quenching test is considered unnecessary, and a cold bending test should be substituted, as follows. A strip of the plate being bent over a mandrel having a diameter of 1½ times the thickness of the plate, the specimen must be bent through an arc of 90°. For material showing a tensile strength of 75,000 pounds or less, no cracks must be developed, and for tensile strengths above 75,000 pounds no serious cracks must be found.

Some of the requirements called for may be met for thinner plates by the exercise of the greatest care, the choice of the best materials and the risk of a heavy percentage of rejections, but it may well be doubted whether any steel-maker will undertake to produce at anything short of a prohibitive cost to contract for the delivery of the 1100 tons of 2-inch plates under specifications so rigid, and in some respects so absurd.

Liquid Fuel on Pacific Steamers.

Some new and interesting contributions have been made within the past few weeks to the question of burning oil under boilers on the Pacific Coast. Special prominence, it may be remembered, was recently given They are, on the contrary, most of them but to the subject by the fact, recorded by us at the time, that the Central Pacific Railroad Company had reverted to the use of coal after several months' trial of the liquid fuel. In the discussions which have since arisen dates of last year, showing both the prices as to the relative economy of coal and oil fuel, figures have been given from the office of the auditor of the motive-power and machinery department of the railroad company, showing the records of three of the largest Piedmont and Solano, with the two fuels. These figures are of special interest, as they have been directly derived from practical tests. For the steamer Thoroughfare the figures for coal, covering the period from December, 1883, to December, 1884, are:

Using oil the record stands as follows:

These figures, it will be noticed, are decidedly in favor of the oil. For the Piedmont, which was originally designed for coal, but was afterward fitted for oil, the following record is given :

November, 1884, to August, 1885, with Coal. Total cost of fuel and firemen......\$39,371.79

September, 1885, to August, 1886, with Oil.

Here also the figures are in favor of the oil. In the case of the Solano, which we would incidentally remark is the largest ferry boat

March, 1885, to August, 1886, with Oil. Cost per mile in cents—fuel......447.42 Cost per mile in cents—firemen...116 26

These figures again show a saving where oil was used. Taking into consideration, besides, the cost of placing the fuel on board the boats, the economy of the oil will be still further demonstrated. In the matter of repair bills, Mr. A. J. Stevens, general master mechanic of the Central Pacific Railroad, contrary to what was currently reported a short time ago, says that during the time the different boats were burning oil they were not called upon to make repairs to the boilers, while with burning coal there was not a week when more or less repairs were not necessary. Altogether, therefore, the superiority of the oil over coal in every respect seems to have been very satisfactorily demonstrated in these particular cases, and the return to coal on the part of the Central Pacific Railroad Company must consequently be ascribed to something other than the results of economy

The Condition of the Blast Furnaces in the United States, January 1.

As was generally expected, the last month of the past year witnessed quite an addition to the number of furnaces in blast throughout the country, as well as a growth in the capacity. So far as the latter is concerned, we have to some extent revised the data upon which our compilations are based. There is a strong and natural tendency among producers to estimate their weekly capacity too high, and it frequently happens that two persons connected with the same establishment put forward figures showing a material difference. Recognizing this, we have endeavored to base our estimates upon actual daily product from returns covering the last nine months, so that they represent an average of actual work, and include those periods of falling off in make due to accidents, delay in the receipt of raw materials, irregularities in working to which furnaces are liable. They balance one another to some extent, at least during the course of a month, so that the capacity estimates we put forward may be accepted as a good guide to computing the probable product of the month by calculating the daily average, and multiplying with the number of days in the month. The status of the anthracite furnaces on

January I was as follows:

Anthracite Furnaces in Blast January 1.

Location of furnaces.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast	Capacity per week.
New York	80	14	4,819	16	4,458 495
New Jersey		8	8,864	7	495
Spiegel Pennsylvania:	8	8	225	0	0
Lehigh Valley	47	40	19,128	7	2,172
Spiegel	1	1	75	0	0
Schuylkill Valley	44	24 14 25	8,382	20	8.450
U. Susquehan. Val.	21	14	8,653	7	1,401
L. Susquehan, Val.	36	25	8,246	11	2,070
Maryland	4	2	449	2	135
Total	201	181	40.786	70	19 581

As compared with previous months the returns stand as follows :

	Furnaces in blast.	Capacity per week.
January 1		40,786
December 1	 119	36,880
November 1	 116	36.348
October 1		85,819
September 1	 112	88,907
August 1	 120	36,841
July 1		86,762
June 1		88,289
May 1	110	96 004

In New York quite a number of furnaces have been added to the list of producers. Cold Spring has gone in, and one of the Crown Point furnaces is again at work. In the early future, one of the Port Henry stacks will begin to make pig iron after a long period of idleness. In New Jersey steamers of the company, the Thoroughfare, the Port Oram furnace has gone into blast, while the Secaucus resumed work after repairs on the 29th. During the current month the Warren furnace will probably be making pig iron, being now ready, while one of the Boonton furnaces is getting into shape. Andover will probably produce more heavily during the current year, since. as we understand, they will use some foreign ores in their mixture. In the Lehigh Valley, one of the Thomas furnaces at Catasauqua is temporarily out, but on the other hand, Keystone furnace of the same concern resumed during the month. The 12 furnaces of the Thomas Company made an excellent record during the last six months of 1886, so far as average product is concerned. The Lehigh Iron Company, we understand, is preparing its second furnace for work. It is practically a new modern stack, replacing an old one. The spiegel furnace of the Lehigh Zinc Company has again become a producer, after being enlarged. Emans, we are informed, is expected to blow in in the spring. In the Schuylkill Valley the Norristown furnace has begun to make Bessemer pig. Otherwise, no changes of any consequence have taken place, although preparations are being made at a number of furnaces. In the upper Susquehanna region, Chulasky furnace blew in on the 16th, and Duncannon at about the same time. All of the five furnaces of the Lackawanna Company are now running. In the lower Susquehanna district, the new No. 3 Chestnut Hill furnace is probably running at this

writing, and the same is true of Lochiel. No. I Paxton furnace will be completed at some time early next month, when it is to be put in in Bessemer pig.

The following is the status of the bitumi-

nous and coke furnaces. Bituminous or Coke Furnaces in Blast

Location of furnaces.	Total number of stacks.	Number reported in blast,	Capacity per week.	Number reported out of blast.	Capacity per week.
Pennsylvania:					
Pittsburgh	17	14	13,800	8	2,950
Spiegel	1	1	450	0	
Allegheny Valley. Shenango Valley	2	1	470	1 6	115
Shenango Valley	21	15	8,171	8	2,859
Youghi. Valley	5	3	9.9		712
Juniata & Conem.	21	13	5,986	8	2,578
Spiegel	1 2	1	284		90
Maryland	10	1 6	120	1 4	1,985
Virginia	6	5	2,697	1	200
West Virginia Obio :	0	0	2,111		200
Mahoning Valley	15	10	6,544	5	2.816
Hocking Valley	15	7	1,438	8	1.027
Hanging Rock	19	11	2,464	1	85
Miscellaneous	18	12	6,988	6	8,260
Kentucky	8		882	0	(
Tennessee	9	3 7 2 9	8,091	2	956
Georgia	5	9	781	0	(
Alabama	11	9	8,964	2	650
Indiana	9	2	865	0	(
Illinois	16	9	9,318	7 2	2,680
Michigan	9	0	0	9	580
Missouri	8	8	1,474	5	1,975
Wisconsin	- 8	1	675	2	850
Colorado	1	1	600	0	

As compared with former months these fig-

	urnaces n blast.	Capacity per week.
January 1, 1887	137	78,422
December 1, 1886,	139	73,795
November 1	140	78,018
October 1	136	70,802
September 1	135	69,206
August 1	133	68,852
July 1	132	71,316
June 1	129	70,766
May 1	129	67,888

In the Pittsburgh district furnaces, Band C, of Carnegie Bros. & Co., were blown out during December, for the purpose of relining and making other repairs. The former will blow in again about the 1st of March. and the latter about the 15th of the same month. Furnace G, now being built by the same concern, is rapidly approaching completion and will go into operation in April. Laughlin & Co,'s new stack is nearly com pleted and may possibly be running before the close of the current month. In the Allegheny and Younghiogheny Valleys there have been no changes. In the Shenango Valley, where scarcity of coke caused stoppages at some of the furnaces in December. the only addition to the producers is the Fannie, blown in on the 27th ult. Claire furnace will follow during the current month. For the Juniata and Conemaugh Valleys there is nothing to report. In Virginia the same furnaces are running, though the Crozer was banked 15 days. The Gem has probably resumed work, after repairs, by this time, it being the intention of putting on the blast on the 10th. In the Mahoning Valley, in Ohio, the product of some of the plants has fallen off, while others have run close up to full capacity, so that the average monthly make has kept up. The Thomas is now out of blast for repairs. In the Hocking Valley one of the Fannie furnaces is again in, and the Winona has also resumed. In the Hanging Rock region all the furnaces but one are running fall. Among the coke plants in Ohio, not included in the above districts, there has been considerable trouble still, during the earlier part of December, with scarcity of coke. The Cleveland Rolling Mill Company, which was forced to bank three of its furnaces at one time, entered January with two running. Since the opening of the month the Junction Iron Company has started its new furnace, 75 x 18 feet, with a rated capacity of about 125 tons per day. In Illinois, No. 6 furnace of the North Chicago Rolling Mill Company went out on the 28th, and the careduced considerably. Want of coke and some current repairs have somewhat rendered the December product below the usual average. In the South there have been no changes worthy of record.

The following is the status of the charcoal

Charcoal Furnaces of the United States, January 1, 1886.

Location of furnaces.	Total number of furnaces.	Number reported in blast,	Capacity per wack,	Number reported out of blast.	Capacity per week.
New England. New York. New York. Pennsylvania Maryland. Virginia North Carolina. West Virginia Ohio. Kentucky Tennessee. Georgia Alabama Michigam Wisconsin Minnesots Missouri Texas California Washington Ter'y. Oregon	18 28 28 17 8 9 2 11 25 11 1 4 29 1	8 4 4 1 8 1 0 7 1 4 0 8 1 8 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	628 515 306 129 137 127 120 630 125 691 0 2,500 3,556 391 0 677 220 0 0 0	5 5 19 12 20 1 3 10 2 5 2 3 19 11 2 12 11 2 12 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14	496 942 614 856 1,148 100 163 470 285 246 145 190 510 110 845 127 100
Total, Jan. 1	175	59	10,701	116	9,648

As compared	with	former mo	nths this is:
		Furnaces in blast.	Capacity per week
January 1, 1887			10,701
Novamber 1			10,746
October 1			10,928

September 1 6	8 10,797
August 1 6	9,725
July 1 6	9,885
June 1 6	1 9,867
May 1 4	5 8,211

Although the number of charcoal furnaces in blast is smaller than usual, the weekly capacity keeps up because a number of small stacks blew out during December and a few large ones resumed. In Pennsylvania, Greenwood ran during the greater part of the month. The Hecla was fired on the 1st of January, and blew in on the 4th, with orders to keep going for four months. Pine Grove turned over to coke and anthracite after four days' work in December with charcoal. Maiden Creek blew out. In Virginia, quite a number of furnaces blew out during the month. In Ohio, it need only be noted that Olive Furnace has gone out for repairs. In Kentucky, the Hunnewell stopped on the 5th for the same reason, with the probability of resuming on the 15th of May. In other parts of the South there have been no notable changes, while in Michigan it is necessary to report only that the Bangor Furnace has probably by this time resumed.

European metallurgists have been giving growing attention to the manufacture of agers for an indefinite length of time. open hearth steel on a basic lining, and have experimented considerably with different refractory materials. The principal drawback of dolomite at first was the diffi culty of getting some good material to serve as an intermediary between the basic bottom and the acid side walls and roof. A neutral substance was wanted, and bauxite was first had recourse to at Creusot and elsewhere, while at Terrenoire plumbago was at first gross tons in a week has attracted attenused. Later, at the latter place, and then used. Later, at the latter place, and then at Alexandrowsky, near St. Petersburg, built by Terrenoire engineers, chrome iron was adopted, becoming since, we believe, the standard method abroad. While moderately successful, this method has had its drawbacks. Both dolomite and magnesia require careful calcining. The tar mixed with it has a tendency to swell during the drying, and finally is burnt out completely, leaving a weak lining. The joint between basic and neutral lining too is troublesome. All these considerations have led to what appears to be a very interesting departure, initiated by Valton and Rémaury, two French engineers, who have introduced what they call their neutral living at Tamaris, and at Commercy, Morvillars and Blagny. An exhaustive paper, by M. Victor Deshayes, a well-known engineer, in the Génie Civil, gives the details and the actual results on a large scale. They use chrome ore exclusively for bottom and side walls, the material being crushed lump ore mixed with I part of lime to 2 parts of chrome ore. A wide range of products has been made at Tamaris from stock of moderate quality, the milder grades of steel being produced with notable success. From the evidence at hand it appears that the new method of using a neutral lining, with lime additions during the charge, is destined to occupy a place in the metallurgy of steel of the future.

Relative to the discussion of the question "What is the best form of packing for piston heads and stuffing-boxes?" which, we notice, was presented at a recent meeting of the Western Railway Club, it may not be amiss to direct some attention to the average character of piston and valve rods and spindles. As a matter of fact, it is not unusual to find such rods, even when new, in a remarkably poor condition. Not only are they often turned out of the shops indifferently finished, but in the subsequent work of fitting and erecting they are handled in a manner which would leave little to remain of the most carefully turned and highly polished surface. It can scarcely be said that any care is taken of the rods when an engine is being put together, and whatever work may have been expended on them to furnish them in the best possible condition is frequently wholly wasted. It is not surprising under the circumstances that in the end stuffing-boxes and packings of every description fail to keep them tight, and that they prove to be sources of constant expense and troublesome delays. The idea which unfortunately prevails to some extent that a valve or piston-rod will, and should, work itself smooth in a stuffing-box is responsible in the preparation of Mr. Hiscock's bill, and for a good deal of this carelessness and are disposed to regard it as very adroitly itself smooth in a stuffing-box is responsible. should be vigorously dispelled.

The death of John Roach removes one of the most remarkable men of the time. Starting life with but little education and with no capital but industry and enterprise. he made his way step by step from the position of day laborer which, as an immigrant without special skill in any industrial occupation, was all he could command, to one of first importance as the largest and most enterprising American shipbuilder. If he had been less a politician and more a manufacturer he would have escaped in great degree, and perhaps altogether, the financial vicissitudes of his later years, but it is astonishing what he accomplished under the circumstances, and what remarkable success attended his efforts to build up a vast industry in, and tributary to, his shipyard. Mr. Roach's life was certainly useful, and in all things touching his personal character, honorable. It is said that 80 per

roads, still fresh in everybody's memory, have added to the already long list of carstove horrors two new ones, shocking in detail. The usual outcry of the newspaper press against the generally prevailing system of car heating has also been made, and it is safe to assume that for a time, until the next accident occurs, this will be the end of the matter. Something, it is true, has been contributed to the subject on the railroad side of the question, but it has been nothing more than the unqualified statement that no practicable substitute has yet been presented for the ordinary car stove, and that under the circumstances railroad companies are the circumstances railroad companies are following the best possible plan. The real truth, however, is that what now seems to that source is still heard, but no defined steps be a comparatively greater expense of operating has deterred the adoption of some heating arrangements of established practical value, and the car stove, with all its dangers and annoyances, will therefore no doubt continue in favor with railroad man-

The Record of Warwick Furnace in 1886.

To the Editor of The Iron Age-DEAR Sin: Several weeks ago you published the remarkable results which Mr. Edgar S. Cook had produced at the Warwick Furnace, at Pottstown, Pa. While the output of 657 inches diameter at the bosh and 55 feet 6 inches in hight equipped with iron pipe hotblast stoves, the figures were for one week only. The following record of the operation of the Warwick Furnace for the year 1886 of the possibilities of modern blast-furnace practice: Total product for the year 1886, 30,627½ tons (2268 pounds). Of this amount 7.4 per cent, was No. 2 X, 85.2 per cent. was No. 2 and No. 3 mill, and 7.4 per cent. was mottled and white pig iron. The fuel consumed per ton of iron produced was 1.2125 gross tons (three-fourths anthracite and one-fourth coke was used). The average yield of the ore mixture for the year was 52.1 per cent. The average tempera ture of the blast was 918°. The cubic feet of air delivered per pound of fuel consumed

was 68.1. Such a record as the above may not pear as remarkable to those who read of the enormous outputs of some of the larger blast furnaces, but when the above figures are critically considered they will demonstrate that the results obtained in a comparatively small furnace, using ores of but medium richness and moderate blast temperatures, are not at all inferior in product or in the economy of fuel and labor to the larger plants using high blast temperatures and rich ores. One remarkable feature of the above figures is the cubic feet of air (engine measurement) consumed per ton of iron made. Yours truly,

JOHN BIRKINBINE.

PHILADELPHIA, PA., January ?

WASHINGTON NEWS.

(From Our Regular Correspondent.) WASHINGTON, D. C., January 11, 1887.

Representative Hiscock, of New York, Republican member of the Committee on Ways and Means, has led off with a bill for the reduction of internal revenue taxation. It repeals the tobacco tax, authorizes methylated spirits to be withdrawn from warehouse free of tax for use in the arts and manufactures under proper regulations, and exempts from tax all articles, preparations and compounds for sale or use in the United States, except alco-holic compounds used for beverages. The fraction. For the encouragement and protection of the cultivation of sugar-producing products and the manufacture into sugar for every ton of beets or sugar cane manufactured into sugar in the United States \$2 is to be paid as bounty to the farmer or planter by the Treasury of the United States.

The Republican members of the Committee on Ways and Means disclaim any share planned but unpracticable in practice. Each of the Republican members of the committee, however, except Mr. Browne. onsiders himself as an expert in tariff legis lation. Therefore it is not likely that any bill introduced by one would receive the un-qualified approbation of all the others. With this sentiment among his colleagues, and the chronic antagonism of the Demo cratic members, there is no probability that Mr. Hiscock's bill will ever be reported back from the committee to the House. It will, owever, serve the purpose of setting forth his position on surplus revenue reduction by internal taxation repeal before the Legisla-ture of New York, which is now wrestling with the question of electing a Senator of

The Democrats are still fussing over their side of the question. Speaker Carlisle has had a lengthy conference with Mr. Randall, Speaker Carlisle has agreeing to give the latter the benefit of recognition and also of facilitating his bill through the committee. formed Mr. Randall that he did not think

bold and brilliant pioneer of a great industry as the readiness of Speaker Carlisle and the The two recent disasters on the Baltimore and Ohio and the Boston and Albany rail.

They do not ceunt upon support from the leaders of the free-trade movement; but if an arrangement can be made with the Republicans to agree upon a bill they will undertake its passage. The internal taxation repeal plan would have the support of not less than 65 Democrats, which, however, would be insufficient without the bulk of the Republican votes, and Mr. Randall has indiforward movement without Republican co-

operation. The Republican members of the Committee on Ways and Means are divided as to the expediency of making any move what-ever. Mr. Reed opposes and Mr. McKinley ever. Mr. Reed opposes and Mr. McKinley favors a distinctively Republican measure. Between them the chances are that nothing will be done.

At the Treasury Department the officials have been taken. The earnestness of the President and Secretary Manning in having something done to prevent the accumulation of the surplus still leads to the belief that ar extra session would be among the probabil ities should the present Congress adjourn without meeting the remarkable emergency ngress adjourn of a Government with more revenues than it knows what to do with.

THE WASHINGTON GUN-MAKING PLANT.

Advices received at the Navy Department from the special board of naval officers signers and master mechanics. There are organized to inspect the steel plants of the country, and report on a national ordnance well trodden paths. There has been a gratifying tendency displayed toward a more liberal heating surface of boiler in proporton navy-yard, now the ordnance depot of the navy, give an account of the visit of the board to the iron and steel mills of Pitts-The board are taking data upon which to base plans and estimates for a plant to be completed in two years capable of turning out finished guns 16 inches in diameter, 45 feet in length and weighing 100 tons. There has been some discussion as to the relative merits of guns of the Krupp method and steel-cast guns. It is expected as soon as the plant is in working order that there will be some experiments as to the relative merits of the two methods. In point of cost, the difference is about \$1.70 a pound for Krupp and 20 cents a pound for teel-cast guns.

LIMITING JURISDICTION IN PATENT CASES.

A large number of letters and memorials are being received by Senators and Representatives from manufacturers and others against the passage of the Townsend bill to and several other master mechanics are fol-limit the jurisdiction of the United States lowing quietly in the same line. The courts in certain patent cases. The bill provides that the United Scates district and circuit courts shall have no jurisdiction to try any case arising from the actual use of any patent right, or its infringement by such use, by any person in the United States or the Territories wherein the amount in con-troversy does not exceed \$200 against one erson or citizen.

SEC. 2. That purchasers of any patent right for actual use shall not be liable to damages, royalty or for value of the same, or for infringing the same in any manner, who at the date of such purchase had no knowledge of the claims of any third person, or that the inventor of the same has an interest therein adverse to the seller thereof. That no person who shall in good faith pur-chase, use, manufacture or sell without prechase, use, manufacture or sell without pre-vious knowledge of the existence of a patent therefor any article, machine, machinery or other thing for the exclusive use, sale or manufacture of which any patent has been or hereafter may be granted to any person, persons or corporations whatever, shall be persons or corporations whatever, shall be liable in damages or otherwise for an infringement of such patent until after written notice of the existence thereof shall have been personally served on such person or persons or corporation, as the case may be, and such infringement shall be thereafter

Locomotives Built in 1886.

ing the year 1886, the National Car and Locomotive Builder, in its January number,

the curves of ascent to prosperity and of descent to depression appear to be steeper than the lines representing the fluctuations of any other important business. Throughout the year 1885 the demand for new locomotives was so small that several of the building firms had to quit the business, and others retained only workmen enough to keep their leading tools moving. When last year opened, the prospects of business had slightly improved, and the improvement advanced so rapidly that at the close of the year most of the locomotive shops were running close to their full capacity, with orders ahead. Seven of the leading loco notive builders turned out 1221 new engines during the year, the same firms having constructed 800 locomotives the previous year, which shows a gratifying increase of busi ness, especially when it is considered that the greater portion of the additional work was done during the last six months of the

There are 15 establishments in the United There are 15 establishments in the United States and one in Canada engaged in locomotive building as a business. A few of the companies, mostly the smaller shops, declined to reveal their output for the past year, but by private inquiries we found how many engines they had built, and our estimate is that the total number of locootives built in contract shops was 1527 From the data sent us by master mechanics information obtained in various ways that ton. It is expected that this course The Speaker in-he did not think locomotives were built in railroad shops, trade. The exports of crude asphalt for much of his bill, but still he was willing to making a grand total of 1802 engines contributed in the United States and Canada tons, 33,383 tons and 28,505 tons; thus

cannot be less than \$15,000,000. will be admitted even by those who paid him little honor when living.

free traders to give their bill a chance is looked upon as a scheme to get them started with their measure and then to slaughter it.

greater portion of money paid for locomolooked upon as a scheme to get them started with their measure and then to slaughter it. readily seen how much influence the condition of the locomotive building trade exercises upon the prosperity of manufacturing

The production of locomotives in 1886 was large compared to that of the previous year, but it was not equal to the natural increase of railroad rolling stock. The Railway Age reports records of more than 7000 miles of cated his determination not to venture in a new railroad built during the year, which would call for 700 locomotives, nearly half of the whole number built. The railroads in the United States use at present 27,900 locomptives and those in Canada 1376 locomotives to do the work of transportation.

The economical life of a locomotive is not much beyond 25 years. There are now so many locomotives in service that are more than 25 years old, that nearly 1000 of them ought to be broken up annually to keep the remaining stock within the age that the en-gines could be run without ruinous expendi-ture for repairs. When the requirements of transportation make new locomotives in active demand, there are few worn out engines that find their way to the scrap heap. It looks as if none of the locomotives built last year were used to fill the blanks due to age and wear, the increased need due to extended mileage and the growth of the carrying business having absorbed the whole output. The locomotives built during the past

year exhibit in a marked degree the con-

liberal heating surface of boiler in propor-tion to the cubical capacity of cylinders. All first-class roads continue to hold strictly to interchangeability of parts, and nearly all the leading builders have abandoned the fit and try process of putting locomotive parts together. If the management of our minor roads would consult the future parts together. If the management of our minor roads would consult the future prosperity of their property by requiring that the locomotives they order should be made up of strictly interchangeable parts, they would soon push the builders who cling to ancient methods entirely out of the trade. The percentage of all steel boilers is increasing, and there is a tendency toward still higher steam pressure. Mr. J. N Lauder, Old Colony Railroad, is carrying 175 pounds per square inch on the boilers of a new class of passenger engine that he has got in service. Mr. G. W. Stevens, Lake Shore and Michigan Southern, is carrying 180 pounds on his fast passenger engines, struggle, never altogether abandoned, to obtain more work out of the steam by expansion than the link motion admits of, has been continued by a few master mechanics. Mr. William Wilson, Chicago, Alton and St. Louis, has applied a motion operating double valves to some of his engines with very encouraging results. Mr. Alexander Mitchell, Lebigh Valley, has built a locomotive after the Strong patents which embody a motion operating separate admission and release valves, and Mr. A. J. Stevens, Central Pacific Kailroad, continues his experiments with a special motion operating a valve at each end of the cylin-ders.

The oddities in locomotive construction during the year have been a heavy freight engine built by Mr. Alexander Mitchell, with two large corrugated fines for furnaces, something like the Fox furnaces so much used in marine boilers. Some motors were built by the Baldwin Locomotive Works, to use soda as a means of storing the heat re quired to generate steam for each trip. same firm built two Decapod locomotives with five pairs of driving-wheels coupled and a leading two-wheel truck. Six or seven years ago locomotives with more than eight wheels coupled were looked upon with hatred by most railroad men, although a few far-seeing leaders advocated the use for freight service of heavier engines resting on three or more pairs of drivers. The progress in this direction is now so decided that the comotive builders put up last year about as many engines with three pairs of drivers and over as there were eight-wheel engines built. The continuous brakes already in use ments. While there are no striking marks of progress to record, there are no acts of retrogression or departures from engineering common sense. No improvement promises to reduce the cost of operating 50 per cent., but on the other hand no one is insist ing that restricting the free admission of ateam to the cylinders will promote economy, and no one is trying to increase the efficiency of the locomotive by transmitting the power through friction wheels.

Pig Iron Production of Germany .-According to the returns of of German Iron and Steel Manufacturers the pig iron production of Empire (including Luxemburg) during October was 268,260 tons, including 132,954 tons of puddling pig iron and spiegel iron 35,061 tons of Bessemer pig, 69,625 tons of Thomas pig, and 28,820 tons of foundry pig. The production of October, 1885, was 332,668 tons. From January 1 to October 31, 2.780,379 tons were produced, against 3,128,990 tons during the same period of 1885.

It is reported, in connection with the great wealth that lies in the Pitch Lake of Trinidad, that the former monopoly of "digging" the asphalt has been brought to an end, and licenses are now offered openly in reply to letters of inquiry, and from by the Government at a royalty of 2/6 per acter, honorable. It is said that 80 per cent. of the vessels now sailing under the American flag in international trade were built by John Boach, and that he was a friends are also disposed to move cautiously,

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MANUFACTURING.

Iron and Steel.

The wages of the men employed at the Lucy furnaces, Pittsburgh, were advanced 10 per cent. last week, and some of the men receiving low wages were granted a 15 per cent. advance.

Messrs. Miller, Metcalf & Parkin, proprietors of the Crescent Steel Works, Pitts-burgh, Pa., have purchased the double building Nos. 64 and 66 South Clinton street, Chicago, and are now fitting it up for early occupancy.

The Lake Erie Iron Company, of Cleveland, Ohio, state that there is no truth in the report that they intend to build two blast furnaces. In all probability the company will erect a furnace at some time in the future, but nothing has yet been definitely determined.

It is stated that an Eastern syndicate has purchased the Palmer estate, on Second avenue, Pittsburgh, and will build large iron

The product of the Sligo Furnace, Dent County, Mo., for seven days, ending January 1, was 370 tons of 2268 pounds each, on average fuel consumption of 912/2 bushels charcoal per ton. Yield of ore, 58 per cent. The product consisted of 160 tons I and 2; balance, 21/2 and 3 grades.

The New Philadelphia Pipe Company, of New Philadelphia, Ohio, are building to new pipe pits 65 feet in diameter, and are putting in additional steam cranes of 20 tons each, made by the Phonix Iron Works, of Cleveland. They have also placed in a new engine and boiler, two new 6-foot cupolas, four new core rooms and a new cleaning and testing house 150 feet long. The capacity of the works is 60 tons per day. They employ, when running full, 120 hands.

Mr. A. Pluemer, of the late pig-iron commission house of A. Pluemer & Co., Cincinnati, has been elected president and general manager of the Etna Iron Works, with the principal office in Cincinnati and the works n Ironton, Lawrence County, Ohio.

The wages of the men employed at the Eliza furnaces of Laughlin & Co., at Pittsburgh were advanced 15 per cent. last week.

The Arbitration Committee appointed to fix the rates of wages to be paid at the Edgar Thomson Steel Works, Braddock, Pa., concluded its labors last week. The men will receive for the ensuing year an advance of from 5 to 15 per cent, which about equals the scale of 1884. All depart-ments of the works have resumed operations.

The Calumet Iron and Steel Company, of Chicago, Ill., are running full time throughout their works, with the exception of the nail mill, which has been closed down for repairs, but will start up about the 20th inst. The company are about to begin the manufacture of splice-bars for rails, which is a new departure with them.

Maiden Creek furnace (charcoal), at Lenhartsville, Pa., blew out on the 1st inst. for the purpose of relining and making repairs.

It is reported that J. D. Briggs & Bro., of Cleveland, have secured a site at Findlay, Ohio, for the erection of a large rolling mill, on which work will be commenced about the first of the year.

The men employed in the Joliet Steel Works, at Joliet, Ill., have received an increase of 12% per cent. in the converting department and 13% per cent. in the rail

No. 2 furnace of the Pennsylvania Steel Works, at Steelton, Pa., is being relined and otherwise repaired, and will be put in blast in a short time.

At a meeting of the stockholders of the Lehigh Iron Company, of Allentown, Pa., held on the 3d inst., the following officers were elected for the ensuing year: Presi-dent, William H. Ainey; directors, William H. Ainey, Martin Kemmerer, Milton Apple, Aaron Balliet and Benjamin Hagenbuch.

J. A. Adair, who has had charge of the furnaces of Andrews & Hitchcock, at Hub-bard, Ohio, for a number of years, has accepted the position of superintendent of the steel works of Carnegie, Phipps & Co., at

The steam forge of the Reading Iron Works, at Reading, Pa., has resumed or tions after an idleness of two years.

Jones & Laughlins, Limited, of the American Iron Works, Pittsburgh, week, started two new puddling furnaces specially constructed for use with natural gas. They are building five other similar trolled and owned by Cspt. A. G. Cummings, furnaces, which will be started within the next two weeks. They are also building a manufacture of the interlocking switch and new battery of 16 boilers in the rolling mill.

A new malleable iron foundry is to be built at Cleveland under the name of the Forest City Malleable Iron Company. Several acres of valuable land have been secured, and the location is an admirable one, as it will have the advantage of two railways on which to ship and receive receive The buildings, which will be of brick and very commodious, have been communced, and will be completed by the early spring. The firm is composed of the following gentlemen, each of whom will take an active interest in the business. The melting, molding, and annealing departments will be in charge of Mr. John C. Tobein, late superintendent of the Eberhard Mfg. Company, of Cleveland. He will be assisted by Mr. Daniel J. Cullman, who is also an experienced man in the foundry The pattern making will be in charge of Mr. John Simpson, now superintendent of this department for the Cleveland Malieable Iron Company. The office and finances will be looked after by Mr. F. M. Nicholas. Mr. George H. Hopper, of the Standard Oil Company, and Mr. I. W. Nicholas, one of the largest vessel owners in the city, are also interested in the firm.

oco cords annually, and for the further object of ultimately erecting rolling mills, and to manufacture steel under the Reese basic process. The capital stock will be \$700,000, one-half to go to subscribers of onds and the other half to the owners of Pierce and Reese patents. There shall be bonds to the amount of \$350,000 issued. These bonds will be placed on the entire property of the company, real estate, im-provements and franchises, and shall bear 6 per cent. interest and shall run 20 years. After paying interest on the bonds an annual amount is to be set aside as a sinking fund, which at the expiration of 20 years shall aggregate an amount equal to the amount of bonds then to be liquidated. The bond subscribers receive an amount of fully paid up stock equal to amount of bonds

Bradlee & Co., of the Empire Chain Works, Philadelphia, have also furnished a marine railway chain for the Wood Mfg. Company, of New Jersey, made of 21/2-inch round iron, 700 feet long, weighing 50,000 pounds, and capable of hauling out the largest vessels. They are also making the cables and anchors for the steamer building at Neafie & Levy's, Philadelphia.

The Ironton Register reports the following: "During the year, the Lawrence Mill ran 210 days, of which 179 were night turn. Their product of finished iron for the year was 7264 tons. Belfont Nail Mill ran 276 days, and made 272,640 kegs of nails. The Kelly Nail and Iron Company operated their works every week, during the year, stopping only for the legal holiday, turning out 227,000 kegs of iron and steel nails."

The Low Moor Iron Company, of Virginia, are adding an "alternate" stack to their blast furnace plant at Low Moor.

The two Port Henry furnaces of the Bay State Iron Company, which were recently sold to Witherbees, Sherman & Co., are not to remain idle. Repairs are now being made to one of the furnaces, which it is expected will be put in blast early in February. The other furnace will be repaired and put in blast subsequently.

The Champion Steel and Iron Works, at Springfield, Ohio, were put in operation on the 1st of November last, and several hundred tons of iron and steel have been suc-cessfully rolled. The works are small at cessfully rolled. present, containing 4 trains of rolls—one, q-inch, one 12-inch, one cold roll train, and one special train. An extension to the works, 300 x 120 feet, has been commenced, in which will be placed a 20-inch train, one blooming train and two special trains. A small open-hearth plant and a double pud dling furnace are also to be added to the works.

The copartnership of R. W. Coleman's Heirs, owning the Bird Coleman and Donagh more anthracite furnaces and Cornwall charcoal furnace in Lebanon County, Pa., has been changed to a limited association, styled the Cornwall Iron Company Limited, Wm. Coleman Freeman, chairman.

The Trumbull Iron Company, at Girard, Ohio, have added a new building to its works, in which has been placed a Smith gas fur-nace and a 7 inch mill. The company is also making another addition to provide room for six puddling furnaces.

The Sheldon Axle Company, of Wilkesbarre, Pa., to which the business of Sheldon & Co., of Auburn, N. Y., has been entirely transferred, will begin the erection this year of a rolling mill at Wilkesbarre, adapted to reducing steel billets.

The Irondale charcoal furnace, at Crockett Depot, Wythe County, Va., was sold in De-cember, with 4000 acres of land, to W. C. Bullitt, of Philadelphia, for \$130,000,

The Ironton, Ohio, Register reports: Our furnace product for 1886 was 77,258 tons, as against 40,403 tons for the year 1885. This is nearly doubling the product in a year. We give below the figures of each furnace:

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Machinery.

The Union Switch and Signal Company of Pittsburgh, has just completed the pur chase of the patents and machinery con-trolled and owned by Capt. A. G. Cummings, signal similar in some respects to that patented by George Westinghouse, Jr. The plant and business of the Harrisburg will be transferred to Pittsburgh in a short time.

The Link Belt Machinery Company, 11 to 23 South Jefferson street, Chicago, are making three continuous freight elevators for the Chicago, Milwaukee and St. Paul Railway Company's freight house. This company is making a specialty of machinery for handling light and heavy packages, either for elevating or conveying them.

The boycott declared about 8 months ago against the firm of J. F. Seiberling & Co, at Akron, Ohio, manufacturers of the Empire mowers and reapers, has been lifted.

The Toledo Foundry and Machine Company, of Toledo, Ohio, are putting up two brick buildings which will increase their manufacturing facilities fourfold. With favorable weather they hope to have all in operation by the middle of February. They intend making a specialty of manufacturing railroad tools, consisting of excavators, pile drivers, snow plows, hand cars; also saws, with hoop machines, &c.

The Bouton Foundry Company, at Nos.

two 50 ton charcoal-iron furnaces and eral castings per day. They intend to do charcoal and chemical works, under the Pierce processes, for the treatment of 80,-000 cords annually, and for the further days and have contracts to start up on the 20th of this month. N. S. Bouton is the president; E. G. Shumway, vice-president; F. W. Barker, treasurer, and Carl D. Bradley, secretary. The last three gentlemen assumed their duties on the first of this month.

> At a meeting of capitalists of Beaver At a meeting of capitalists of Bessel Falls, Pa., held on the 5th inst., the feasibility of forming a company and building a large machine works at that place was talked over. A large amount of money was pledged and there is little doubt that by spring another industry will be added to the many already there.

Boyts, Porter & Co., proprietors of the Connelsville Machine Shops, at Connelsville, Pa., shipped last week to the Chicago and Connelsville Coke Company, at Leith, Pa., for use in their shaft, one of their special long-stroke mine pumps with daily capacity of over 1,000,000 gallons. The cylinders are 24 x 12 inches and 48-inch stroke. The pump when placed in position is 19 feet long and 6 feet high, and weighs over 8 tons.

The sale of the well-known Cuyahoga Works, to the recently-organized Cleveland Works, to the recently-organized Cleveland Shipbuilding Company removes from Cleveland's industries, at a prosperous period in their existence, one of the oldest establishments in the city. The Cuyahoga Steam Furnace Company were incorporated in 1834 by Messrs. Luke Risley, Josiah Barber, Richard Lord, John W. Allen, B. F. Tyler and Charles Horse and M. Allen, B. F. Tyler and Charles Hoyt, only Mr. Allen now surviving. Mr. Charles Hoyt was the first manager. He was succeeded by Mr. E. T. Sterling, and Mr. Sterling was followed by Mr. William B. Castle, ex-mayor of Ohio City and Cleveland. Mr. Castle died in City and Cleveland. Mr. Castle died in 1872, and Mr. J. F. Holloway, who had been superintendent of the works since 1861, succeeded him. Mr. Holloway has had full charge of the establishment since that time, and has won an enviable reputation throughout the country as a mechanical engineer. During the past 10 years the company have turned their attention mainly to the manufacture of large blowers for furnaces and other heavy machinery, and have supplied many of the large steel works and iron manufactories of the country west of the Allegheny Mountains. Before that they, for some time, were the best known marine engine works on the line of the lakes.—Iron Trade Review.

Nashville, Tenn., is to have a cable road the charter and necessary capital, it is said, having been secured. The road will be about 3 miles long. The incorporators are: Geo. K. Whitworth, E. T. Noel, Geo. Davison, Len B. Fite and H. B. Morrow.

Referring to the fire at the Reliance Works, Milwaukee, Wis., on the night of the 6th inst., Messrs. E. P. Allis & Co., the proprietors, write us, under date of January 8: "The report has gained wide circulation that the fire has entirely destroyed our machine shops here so that we will be unable to proceed with business in future. We wish to correct that and say that only the molding-room was destroyed, leaving our machine shops, pattern shops, &c., intact. We are running as usual, receiving tact. We are running as usual, receiving and filling orders." In a notice which they inclose, addressed to the public, Messrs. Allis & Co. say: "We have concluded arrangements with the Pullman Works, at Pullman, Ill., whereby their large foundry s placed at our disposal to whatever extent we want until our own can be rebuilt. shall immediately send our workmen and patterns there, and our business will proceed without interruption.

The Prunty Mfg. Company, Baltimore, Md., are about to commence the manufact-ure of Prunty relief valve and nozzles and other brass specialties

Taplin, Rice & Co., Akron, Ohio, have recently filled an order for a pair of shears weighing 22 tons, to go to New Albany, Ind.

The Lane & Bodley Company, of Cincinnati, have been awarded the contract for a pair of 24 x 60 Corliss engines, four boilers, cable driving and tension machinery, a com-plete plant for two cables for the Mt. Auburn Cable Railroad Company, of that city

The largest locomotive boiler ever built in Hartford, Conn., so far as known, and probably one of the largest ever built in the United States, has just been tested at the shops of I. B. Davis & Son. It will be at come famous as the Wheeling pavement. They will also operate in coal and coke. where it is to take its place beside another of like size made by the same firm. The pair will be used to generate steam for the dynamos that operate the electric lights of the building. The boiler weighs 9 tons and has 1202 square feet of heating surface giving 186 horse-power.

The Montgomery Soap Works, of Mont gomery, Ala., have just completed an addi-tion to their factory building to be devoted to the manufacture of toilet soap, and are now preparing to put in the proper machinery, including glass dies for pressing.

The Morgan Engineering Company, Alliance, Ohio, are completing three shears of 950 tons each, which cut steel plate to feet long and 1½ inches thick, for Curnegie, Phipps & Co., of Pittsburgh. They shipped lately a 15-ton hammer to Miller, Metcalf & Parkin, of Pittsburgh; weight of same 210 tons. They have orders for the building of 40 cranes of different sizes.

A new firm in the machine business in Cincinnati are known as the Cincinnati Machine and Tool Company. The new concern have secured space in the new building of Lodge, Davis & Co., and start out under the most favorable auspices.

The Watertown Steam Engine Company, of Watertown, N. Y., inform us that they are driven with work and are considerably behind in their orders. They are consider ing the question of closing their shops at Watertown, and removing to some point nearer to New York City or on some trunk

drill cutting, one Brown and Sharp Universal grinding machine for reamers, and have also built some special machinery during the past three months, to facilitate getting out their work.

The National Pulley Covering Company of Baltimore, Md., are putting on the market a pulley covering composed of cork, linseed oil and other ingredients, and designed to prevent the slipping of belts. The material, re are told, has given very good results, and is meeting with some favor.

H. Bickford, of Cincinnati, a prominent drill-press manufacturer, has recently sold his business to a new firm composed of Mr. George A. Gray, Jr.; Messrs. Kierkhoff Bros. and Mr. Hoffinghoff. The new firm are to take possession April 1, and will conduct business under the firm name of the Bickford Tool and Machine Company. We understand that Mr. Bickford returns to New Hampshire, his old home, and engage in the manufacturing business there

Hardware.

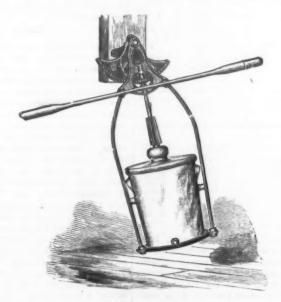
At a meeting of the directors of the Beaver

now in service can draw 35. All the bridges

The United States Rolling Stock Com oany, Urbana, Ohio, have been awarded the ntract for the construction of 500 ccal cars for the Erie system. The works will have to put in \$10,000 worth of new machinery, and will give employment to 400 or 500 men.

The Pendulum Churn.

The Vanceboro' Wooden-ware Company, Bangor, Me., are making the patent labor-saving pendulum churn, which is repre-sented in the illustration given herewith, and which they allude to as different in principle, design and construction from any other churns. Its special features and the method of operation are indicated in the illustration. The points which the manuillustration. The points which the manufacturers make in regard to it refer to the advantages it possesses, and at the same time indicate its construction and operation: At a meeting of the directors of the Beaver That being automatic and of simple device Falls File Company, of Beaver Falls, Pa., it can be easily operated by a child, and is



Pendulum Churn

held last week, Mr. John Reeves, was elected president, and Mr. Frank W. Walker, secretary and treasurer.

It is reported that the Bay State Arms Company, of Uxbridge, Mass., will remove from that town to Meriden, Conn.

Miscellancous.

The total shipments of coke from the Connelsville region last month were 27,000 cars, as against 24,100 cars for Novem The increase in shipments is due to the fact that better facilities for shipping were furnished by the railroads during the latter half of last month. Of the total output the syndicate marketed 18,700 cars and the independent operators 8300 cars. These were distributed as follows: West, 13,600; east of Connelsville, 6500; Pittaburgh and rivers, 6900. The figures for November were 11,825 west, 7000 east and 5275 Pittaburgh. Of the 10,952 ovens reported available in the region there were but 325 idle last week, classified as follows: Pool ovens, 225; furnace ovens, 100.

A Cincinnati exchange says: The Mount Auburn Cable Railroad Company have con-tracted with Broderick & Bascom, of St. Louis, for a cable 11/4 inches in diameter, weighing 21/2 pounds to the foot, for 8 miles of track (4 miles each way), and it will weigh a little over 52 tons. It will be taken up the hill in two sections—one for that part of the road between Fourth street and the power-house on Highland and Saunders avenues, a length of 11/2 miles, and the other section for that part between the enginehouse and the terminus of the road in Avon-dale, a length of 2¼ miles.

A charter was issued on the 8th inst to the Wheeling Mining and Manufacturing Company, of Wheeling, W. Va., composed of prominent capitalists, who have already

The Cleveland Shipbuilding Company, incorporated some time age with a capital stock of \$250,000, 75 per cent. of which has been paid in, have purchased the property of the Cuyahoga Furnace Company and Mr Perkins's lot adjoining, making a total of about 680 feet river front, on the west side of the river, all of which can be used as a shipyard except that on which the machine shop stands. It is the purpose of the new company to build iron and steel vessels.—Trade Bevisw.

The Reading Railroad repair shops at Philadelphia have been abolished and over 150 men discharged.

At a meeting of the stockholders of the Chartiers Valley Natural Gas Company, of \$3.000,000—a total of \$5,000,000. Pittaburgh, held last week, it was unaninously decided to increase their capital stocks from \$2,000,000 to \$3,000,000. The present stockholders, it is understood, will take up the new stock. The earnings of the company now amount to over \$40,000 monthly, and it is said a monthly or quarterly dividend will be declared regularly hereafter. The bonded debt, amounting to \$500,000, created about a year ago, and such floating debt as may exist, will be paid out of the money derived from the sale of the of the money derived from the sale of the new 1000 shares of stock, and the surplus ing freight to this new road. will be applied to further increasing the plant.

The Pennsylvania Railroad Company have just completed 32 locomotives, of an order for 53, which are the heaviest ever built by The Nashville Iron, Steel and Charcoal Company have been organized at Nashville, Tenn., so build there during the year 1887.

The Bouton Foundry Company, at Nos. 2600 to 2626 Archer avenue, Chicago, are putting in only one cupola, but expect to have two with a capacity of 80 tons of genhaving just added two milling machines for

was therefore labor-saving; that there is no iron or metal of any kind to be brought in contact with the cream, thereby avoiding any collection of corrosive matter: that it be taken entirely apart and is thus easily cleansed and cannot get out of repair; the evenness with which it brings the butter, giving, it is claimed, a larger percentage from the same amount of cream than other churns; that a small amount can be churned as well as the capacity of the churn. Their circular relating to it gives directions concerning its use and further information in regard to it. These churns are made in three sizes, No. 1 holding 6 gallons, which will churn any quantity to 3½ gallons; No. 2 holding 9 gallons, which will churn any quantity to 5 gallons; No. 3, holding 13 gallons, which will churn any quantity to 7 gallons.

A Large Barometer .- The largest barometer in this country is that contrived by Zophar Mills at his office, 146 Front street, New York. So far as Mr. Mills knows, his is one of three glycerine barometers in the world. There is one in London and one in Scotland. Mr. Mills has had a glass tube drawn 31 feet long and with an outside diameter of IM inches The iuside measurement or bore is just I inch. It was hoisted to the roof of the Front street building, and a hole large enough to admit the tube was bored through the roof and down through the several floors to The tube was carefully lowered through this bole and suspended by a brass collar against the wall in Mr. Mill's office, which is on the second floor. The lower end of the tube hangs in a cistern filled with glycerine in the floor of the cellar. The advantages of Mr. Mills's big barometer are these: It is so big that slight variations can be read at sight and can be seen from a distance and at a glance; the variation in movement is not only great but it is quick, and Mr. thinks his big barometer will give a hi coming storms two or three hours before a mercurial barometer will show a depression.

The last of the striking nailers of the nail mill of the Calumet Iron-Steel Company, at Cummings, have left that place and removed to Hammond, Ind., to work in the new nail mill of General Torrance. The strike. which began in June, 1885, has never been declared off. In the end the men's places were filled by the company, and the mill started anew.

A syndicate have bought the property of the Anniston Land and Improvement Company for \$3,000,000, and the property of the Woodstock Iron and Steel Company for property includes the Woodstock Iron Furnace, with its mineral and timber lands; the Anniston Inn, and all other property owned by these corporations. The Woodstock Iron and Steel Company will at once erect two large coke furnaces, and have perfected arrangements for a standard gauge railroad to Gadsden, to be known as the Anniston and Cincunnati Railroad, which has made a traffic arrangement for through business with the Cincinnati Southern Railway. The

Mr. G. B. Wilkinson has been appointed agent for the sale of Messrs Witherbees, Sherman & Co.'s Port Heury iron ores with an office at 40 Wall street, New York

J. O. Everson, of Pitteburgh, propbuild a plant to make mortar, blocks and bricks from blast furnace alag.

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A HARDWARE STOCK FOR SALE.—A rare chance in a first-class country town in Central Obio; aclean stock; population 4500; sales can be raised to \$50,000 with agricultural implements and stoves; the best of farming country to sell in; no waste lands; going to California to live or could not be bought; terms cash on stock and half cash on building; will sell both or separate to suit buyers. Address P. O. BOX 58,

Asbland, Obio HARDWARE STOCK FOR SALE .- A PAP

LARGE SIZE, 500 Pages, 6 x 91/4 in. each, \$8.00. POCKET SIZE, 250 Pages, 4 x 7 in., each, \$4.00. Send for Circulars.

LAMBERSON,

PORTLAND, OREGON.

WE buy all kinds of Iron and Steel Scrap, Burnt Iron, Old Rails and Cast B rings (in carloads only) Write us. naming quantity and price.

ROBINSON & ORR,

115 Water St., Pittsburgh, Pa. (ESTABLISHED 1859.)

TO MANUFACTURERS. Powe to let; New York State; \$6 to \$10 per H.-P. per year Terms to suit. Location unsurpassed. Address "POWER CO." office of The Iron Age, 06 and 68 Duane St. New York.

NOTICE.

Large Buyers of bhafting are requested to send specification for special prices MERWIN McKAIG, Cumberland, Md.

Special Notices. GREAT BARGAINS IN MACHINERY.

1 14 in. x 30 in. Corliss Automatic Engine, New

140 in. x 22 in.

120 in. x 18 in. Automatic Cut-Off Enging.

101/2 in. x 28 in. Slide Valve Engine.

10 in. x 26 in Horzontal Engine. New.

8 in. x 15 in.

8 in. x 12 in. Ames Engine. Nearly new.

8 in. x 10 in. Portable Engine and Boiler.

15 in. x 10 ir. Horizontal Engine. earter Engine, with 15 H.-P Boiler, earter Engine, with 15 H.-P Boiler, earter Engine and Boiler, buble-Drum Hoisting Engine and Boiler, et. Horizontal Tubular Boiler, ft.

ft Locomotive Roiler 22 ib. x : ft. Engine Lathe. New.

x 6 ft. Back-Geared Drill. Self-Feed.

to in.

**Ames 4-Spindle D₁ills.

Pratt & Whitney 4-Spindle Drill.

Pratt & Whitney sevel Gear Cutters.

1 No. 2 Grvin Militing Machine.

1 Double-Spindle Miling Machine.

1 z in. Heavy Slotting Machine.

1 are Styles & Parker Press

1 4 in. Morris & Tasker Pipe Threading Machine.

1 set Rubber G-inding Rolls.

is set Rubber Ginding Rolls.
9 Tanks, 8 ft. x 5 ft. x 5 ft. 3 in.
1 Tanks, 8 ft. diam. x 8 ft. high.
1 "5½ ft diam. x 5½ ft. high.
Nos. 3, 4, 5 and 6 Woodward Steem Pumps.
1 Knowles Pump. 8 in. Suction, 8 in. Discharge.
1 c fc. Vacuum Pan.
1 14 in. Guild & Garrison Vacuum Pump.
1 Hydraulic rress, 4 in Ram, 4 ft. Lift.
1 Larse Wood Furning Lathe.
1 larse Wood Furning Lathe.
10 in. 12 in. and 15 in. Double Leather Beets.

ROBT. J. CRAY, 502 West St., New York

METALLURGICAL ENGINEERING.

I am prepared to furnish

PLANS, SPECIFICATIONS and ESTIMATES

AND TO

SUPERINTEND THE CONSTRUCTION OF ROLL-ING MILLS AND MACHINERY, RE-GENERATIVE GAS FURNACES, TUBE AND PIPE MILLS, EIC., EIC.

I represent the latest improvements in all the above branches.

M. V. SMITH, Metallurgical Engineer, Rooms 16, 17, and 18 Bissell Block. Pittsburgh, Pa.

FOR SALE.

A plant suitable for the manufacture of Agricultural Machinery, consisting of two large, com modious builoings—one for iron and wood-werking machinery, the other for finishing, painting and

machinery, the other for finishing, painting and shipping.

Also, en same ground and in connection with it, a targe foundry and smith shop. The whole is stocked with a full supply of the best makes of iron and wood-wo king machinery, necessary small tools, with complete sets of patterns for manufacturing Reapers, Mowers and Self-Binding Harvesters, all of which are in excellent condition and practically as good as new.

It is desirable to self the above as a plant, and an excellent opportunity is here offered to any one wishing to engage in manufacturing.

Should parties desire to purchase machinery alone, would self the same separately.

For further particulars, address

DORSEY MACHINE COMPANY MILTON, WAYNE COUNTY, IND.

FOR SALE-A clean and well-assorted stock of Hardware, Stoves, &c., at Valley Springs, Minnehaha Co., Dak. Stock inventories about Will sell on easy terms. Valley Springs Packing House 62 x 22, Stove Storehouse 50 x is located in the richest portion of Dakota, and 14 and Storehouse and Box Shop 30 x 20. All in profitable trade is assured. profitable trade is assured. Address

PEAVEY BROTHERS, Sioux City, Iowa.

We buy and sell all classes of Iron and Stee Scrap. Correspondence solicited.

JOS, C. POULTERER & CO EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

ROBERT R. HAYDOCK & Co., and E. BISSELL & Co. WHOLESALE

HARDWARE AUCTIONEERS, 13 Murray St. and 18 Park Place, N. Y. Sales held weekly for the trade. Consignments solic ited. We refer to the leading manufacturers and im

TRAVELERS WANTED

to sell a new, neat, ingenious and handsomely boxed Wood-Worker's Tool as a side line, on com-mission. Fells readily at \$6.00 per dozen and will carry in your vest pocket. nd or Descriptive Circular.

THE HALE MANUFACTURING CO., Minneapolis, Minn.

FOR Boller Fronts there is nothing equal to Dixon's Silicon Graphite Paint. It is a ence, beautiful black, will not burn off and will pre-

JOS DIXON CRUCIBLE CO..

Jersey City, N. J.

WANTED.

so Second-Hand Side Dump Cars for construc tion and ballasting purposes. Must not be too much worn, but serviceable and in good condition State price and location of cars. Address, W.G. TULLER, Purchasing Agent N. Y. L. E. & W. R. R. Co., 2: Cortiandt st., N. Y.

WANTED,

Hardware Salesmen to take as a side line our specialties on commission. For particulars, address "MANUFACTURER."

Box 754. Hartford Conn.

Special Notices.

\$50,000 Worth

OF HARDWARE FOR SALE BY

OF HARDWARE FOR SALE BY
CLARK. WIDDIFIE: D & CO., Wholesale Hardware dealers, (incinnati, Ohio Our term of partnership having expired by limitation, we have decided to sell our stock and discontinue business. The stock comprises a full line of general Hardware, Builders' and House furnishing, Agricultural Hand Ipplements (Forks, Hoes, etc.) and other lines of goods, all of which we offer to the trade in lots to suit at prices that cannot but be stisfactory, either on time with approved security or for Cash. We invite specially any parties who design purchasing a new stock or expecting to increase their line of Hardware to examine our stock and prices before purchasing.

Vertical or Beam Engine For Sale,

With Condenser, Vacuum Pump, (ylinder 32 inch diameter, 5-foot stroke, Woodruff & Beach make; Steam Suprly, 8 inch diameter; Wheel in sections, 18 feet diameter; Crank Shaft, 7½ feet x 8 inches. Estimated weight, 28 tons; in very good order; sold only by change in business, whereby a 14-inch engine was required. Price on board cars near Albany, N. Y., subject to immediate shipment, \$000. diate shipment, \$1000. S. C. FORSAITH MACHINE CO.

Rolling Mill Machinery

FOR SALE CHEAP.
Vertical Engine, 30x30 Cyl., heavy Fly Wheel.

1 38x30

1 Scrap Rail Shear and Engine.
1 Heavy Rail Punch and Engine.
1 Heavy Straightener and Housings.
1 Heavy Engine Train Pinions and Housings.
1 Double Frame Morgam Hammer 6000 lb. blow, 14-inch dia. Steam Cylinder.
1 Battery Bollers 2, 48x18 feet, 2-flue Bollers and all connections. 1 Roll Lathe. 1 14x26 Cyl. Box Bed Engine and Band Fly Wheel.

BARNEY & KILBY, SANDUSKY, OHIO

WANTED,

By a Manufacturing Company, Superintendent competent to take charge of a Foundry and Ma-chine Shop. One familiar with painting, graining and general jobb ng work preferred. Address, stating salary expected,

"PREFERENCE. Office of The Iron Age, 66 and 68 Duane st., N. Y

FOR SALE.

One Brown & Sharp No. 2 Universal Miller, with Dividing Head, Chuck, Vise and Counter Shaft. One Star Tool Co. 14 in. x 6 ft. Engine Lathe. One Elhott Drill Press. One Ellott Drill Press.
One Double End Horizontal Riveting Machine.
All good as new. Sold for want of use.
R. G. JORDAN,
Woodbury, N. J

POR SALE—One-half interest in Foundry and Iron Business in one of the most flourishing cities in the West, established four years, now paying a hand-some interest on the investment, and has contracts for over \$30,000 now on hand, besides the general work within a radius of 100 miles. Only parties that can give their entire time and thoroughly understanding the foundry and general management, and able to command \$12,000, need address

P. B. PERKINS, Springfield, Mo.

GOGEBIC FRON MINING STOCKS.

18 Broadway,

ISAAC T. STODDARD & CO. Unequaled facilities for furnishing stocks of the

great Gogebic Iron Range, recently examined for us by thoroughly competent and reliable experts.

REMOVAL.

We beg leave to notify our Western customers that in order to better facilitate our increasing business in Chicago and points west thereof, we removed on the 1st of January from our old stand on Kinzie street, to

202 Lake Street, Chicago, which address we shall be pleased to have them

at which address we shall be pleased which address us.
We are prepired to make prompt shipments from Chicago of our "Gilbertson's Old Method" and "Camaret' guaranteed brands of £00fing Plates, as well as "The Spencer" Bright Plates together with a full line of the cheaper grades of both Roofing and Bright Plates.

**Also Hot and Co'd Rolled Copper, Solder, etc.

**MERCHANT & CO.,

Philiatelphia.

WANTED—A situation as traveling salesman or collector by a man with twelve years' experience in the hardware trade. Has traveled for the past five years and has good reference.

Office of The Iron Age * 66 and 68 Duane st., New York

WANTED-A man who has executive ability and hardware experience, capable of taking charge of shipping department and have charge of order checks in a wholesale hardware house in Michigan. with a salary of \$1,000 or \$1,200. First-class reference required, stating what experience and when, age married or single. comes of The Iron Age, 05 and 08 Duane st., New York-

WANTED.

By a Michigan Jobber, Traveler for Southern Michigan, Northern Ohio and Indiana, Experience in that territory preferred. Good salary to right man. Address, giving reference and experi-

"MICHIGAN JOBBER." Office of The Iron Age, 66 and 68 Duane St., N. Y.

anufacture of a cartridge-loading implement; of fuel. weight about eight pounds, made of iron and

BAILEY, FARRELL & CO.,

Fittsburgh, Pa.

PARTNER WANTED.—Energetic young man to take place of retiring partner; one who has an established trade among Hardware Dealers to travel nearby. Capital not necessarily large. Best references given and required. All communications treated as considential. "HARDWARE JOBER." Office of The Iron Age. 66 and 68 Duane Street, N.T.

Trade Report.

Markets.

[Special Cable Dispatch to The Iron Age.] LONDON, WEDNESDAY, January 12, 1887.

prices are firmer, and a large business has bull the market, and fluctuations in both 891/4; St. Paul and Omaha, 491/8; Union directions may be looked for in the next Pacific, 58%; Western Union Telegragh, We quote:

Coltness, alongside, Glasgow. Langloan, Glengarnock, Ardrossan. Gartsherrie, Glasgow... ummerlee, iotts. Ardrossan Carriage from Ardrossan to Glasgow is 1/ # ton. Cleveland Pig.-The market has ad-

vanced during the week, and closes firm at the following quotations: Middlesboro', No. 1 Foundry ...
No. 2 ''
No. 3 ''
No. 4 Forge ...

Bessemer Pig.-The market is active, prices are firmer and a good business has been done during the week. W. C. Hema-

tites, mixed lots, Nos. 1, 2 and 3, are 48/6, an advance of 2/6 during the week. Bessemer Blooms, -Blooms, 7 x 7 inches,

are now quoted 80/@ 85/. Manufactured Iron.-The market has gained in strength. Prices may be quoted as before :

7 0 0 @ 7 10 0 5 10 0 @ 6 0 0 4 17 6 @ 5 5 0 Staff, Ord. Marked Bars.... Medium " Hoops, 20 W. G. and over. Common Best. Medium

with orders, and favor advancing prices. We hear of inquiries for the United States delivery at United States ports. We quote Ordinary sections, £3. 17/6 @ £4. 2/6.

Old Rails.—The market is firmer, closing quotations for T's, c.i.f. New York, being 75/@ 80/.

Scrap.-Heavy Wrought Scrap has rained in strength, quotations being 60/@ Copper.-As compared with last week,

this metal is unchanged, Chili Bars at the close being quoted £39 @ £39. 10/, with Best Selected at £43 @ £44. Tin .- This metal is a little steadier at the

close, with Straits, spot, quoted at £101. 5/ @ £101. 15/, and futures, £102. 10/ @ £103. Tin Plates.-The market is a little firmer, with prices as follows:

Tin Plates, 10x14, 1st qual. Charcoal....18/ 1st Coke.... Spelter.-The market is unchanged. We quote last week's prices: Ordinary at ship-

ping ports, £13. 10/ @ £14. Freights .- Steam freights from Glasgow to New York have advanced to 10/.

Financial.

Office of The Iron Age, WEDNESDAY EVENING, January 12, 1887. The new year brings no marked improvement in general business, trade being quiet, but the situation is sound and hopeful. upward tendency in speculative commodities and are all included in calls from the 132d. lately observed is temporarily checked, the which matured February 1, 1886, to and in prices of provisions, lard, pork and other cluding the 144th, which matured Decem staples inclining to droop, and wheat is 1 \$ ber 1, 1886. In view of the Attorney Gen-P bushel lower. Cotton is also lower.

Turpentine and linseed oil are higher. Exbonds cannot be used as a basis for nationalports have been on a more liberal scale, the shipments both of breadstuffs and provisions as to the probable course of the Treasury from New York and other Atlantic ports Department toward the banks holding the served, however, that there is a diminished movement from the West to the seaboard, during the week were \$367,000 above as a result of advencing East-bound freight those for the previous week, the total val rates from Chicago to a 30 ¢ basis, the de- uation being \$8,598,054, including nearly crease being nearly one half within two \$2,500,000 in dry goods, which is \$1,000,000 weeks. The improvement in the monetary larger than for the corresponding week situation is more apparent, mainly due to either in 1886 or 1885. The exports of mer-January disbursements in Wall street chandise amounted to \$5,982,469, as comand to the gold imports. In the local pared with \$11,977,000 for the correspondsituation a new element of disturbance is introduced by the strike of coal handlers at shipping points, which is liable to assume a grave importance from the com-WANTED-Malufacturer to contract for the pulsory shutting down of sugar refineries and other manufacturing concerns for lack

On the Stock Exchange the market was irregular, but generally strong. During the first three days dullness was the principal characteristic, and fluctuations had little significance. Friday's trading was restricted by the uncertainties of the Inter-State Commerce bill. On Saturday the decision of Judge Blatchford in favor of the plaintiff in the suit of H. M. Barry against the Kansas and Texas Company to compel payment in The ergometer is the name of a new decash of interest on the income bonds and vice for checking time, invented by Mr. scrip, caused a decline of 1½ in that stock T. W. Morris, Lendon. It consists of a box Wanted in a Hardware Purchasing Office cash of interest on the income bonds and cash of interest on the income bonds and scrip, caused a decline of 1½ in that stock and 2 % in the bonds, and the general market sold down a fraction in sympathy, but and 2 % in the bonds, and the general mar-howing the dial of an eight-day clock, and ket sold down a fraction in sympathy, but WANTED—A situation as Foreman in an Iron
Fost Office Box 2664,

WANTED—A situation as Foreman in an Iron
Fost Office Box 2664,

WANTED—A situation as Foreman in an Iron
Fost Office Box 2664,

WANTED—A situation as Foreman in an Iron
Fost Office Box 2664,

WANTED—A situation as Foreman in an Iron
Fost Office Box 2664,

WANTED—A young married man, energetic and thoroughly posted in retail and wholesale
than been user successful in handling of workmen.
Would like to correspond with parties in need of a Foreman. Address
WOULDER.

Coffice Box 2664,

WANTED—A young married man, energetic and wholesale
than been used in the gentle in its place.

Wanted—A young married man, energetic and wholesale
than been used in the gentle in its purple, but
there sold down a fraction in sympathy, but
there are in the bounds, and the gentle in its purple, being
raised, exposes a alip of paper for signature;
when the lid is closed the time is recorded
ment showing a net deficit of \$4,762,
opposite the name. When the lid is again
opposite the name. When the lid is again
for the year to November 30.

C. MILLINGTON,
Office Box 2664,

WANTED—A young married man, energetic and
the wholesale
hardware, desires position in jobbing or retail house;
there was a first the bounds, and the gentle in the g

fractional, with a slight movement in Jersey Central and other coal shares. Reports of railroad earnings in December were gener ally favorable. To-day prices were hardly as strong. Quotations as follows: Cameron Coal, 401/4; Canada Southern, 611/2; Canada British Iron and Metal Pacific, 661/2; Colorado Coal and Iron, 38 1/4 ; Delaware, Lackawanna and Western, 1331/2; Delaware and Hudson Canal, 1017/8; Erie, 33%; Lake Shore, 94%; Louisv. and Nashv., 6434; New York Central, 11214; N. Y. and New England, 5134; New Scotch Plg .- The market is excited, Jersey Central, 61 1/8; Northern Pacific, 2714; Oregon Transcontinental, 323/8; Pabeen done. There is a noticeable effort to cific Mail, 48%; Reading, 37%; St. Paul, few weeks. Scotch Warrants are now 46/9. 733%; Norfolk and Western preferred, 53; Richmond and West Point, 4214; Richmond and West Point preferred, 78; Tennessee

Coal and Iron Company, 49 United States bonds closed as follows Bid. Asket 100% 1009 U. S. 3 per cents... U. S. 4½, 1891, coupon U. S. 48, 07, coupon U. S. currency 68, 1895... U. S. Currency 68, 1896... U. S. Currency 68, 1897... U. S. Currency 68, 1898... U. S. Currency 68, 1898... U. S. Currency 68, 1899...

The bank statement again exhibited a decided increase in surplus reserve amount ing to \$2,515,325, that item now standing at \$14,786,675, compared with \$12,271.350 the same time last year. The stronger position of the banks was reflected in an increase of \$4,791,800 in loans and an increase of \$10,870,300 in deposits. The total gain in reserve was \$5,232,900. Foreign exchange has advanced to a point that makes further imports of gold improbable, especially as the stock of bullion in the Bank of England is reduced very low, with Australia calling for large amounts of precious metal, besides absorbing the whole of her own production. The posted rates for bankers' sterling are \$4.83 for 60 days and \$4.87 for sight. The market is strong and there the Custom-House report the exports of specie from this port during the week were Steel Rails. - Makers are well supplied \$191,811, and the imports for the same time \$2,230,018, mostly in gold bars from Southampton and Havre.

The bank clearings of 32 cities last week show an increase of 12.2 % compared with the corresponding week last year; outside of New York an increase of 13.9 %. Manufacturing points nearly all make good returns, notably Pittsburgh, which reports an increase of 95 %; Detroit, 28.9; Cleveland, 37.2; Louisville, 33.8, and much heavier gains at points in the Northwest. Every city, with the sole exception of Boston and Providence, shows a gain when compared with last year, and every city on the list, with the exception of San Francisco, shows a gain as compared with the previous week At Chicago and St. Louis the demand for money is active. The Chicago Tribune of January 6 says the mercantile demand is remarkably large, that "many merchants find their business expanding to such an extent that they need more money. The requirements of the country tributary to Chicago are also growing constantly. The number of new enterprises that are springing up to the west of us is large." In Wall street commercial paper is again in good supply, but the banks are not in a position where they can freely loan their funds. We quote 60 to 90 days first class bills 6 %, longer dates 6 @ 71/2 % A Washing ton dispatch says there is still on deposit in the United States Treasury to secure circu lation of national banks the sum of \$3,998, 450 in called 3 % bonds which have ma-The tured. These bonds are held by 196 banks, bank circulation considerable

The imports of merchandise at this port ing week last year and \$14,428,000 in 1885. The items include the following: 155,613 barrels flour, 727,106 bushels wheat, 347,163 bushels corn, 17,827 bales cotton, 5,683,319 gallons petroleum, 6,758,722 % cut meats, 4,899,035 th lard. The Bureau of Statistics report the exports of mineral oils during calendar year 1886 aggregated \$47,016,775 compared to \$49,244,759 in 1885. Exports of cotton for December, \$41,829,357, compared to \$32,120,741 for December, 1885.

Cable railways are gaining ground in Australia. A line was recently opened in Melbourne.

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Trade Report.

NEW YORK.

American Pig.-The market is in a peculiar position. Those of the furnace comtheir product for future delivery have as take, and are now asking higher figures for foundry grades-viz., \$21 for large lots of No. 1, early delivery, and \$20 for No. 2. Those buyers, however, who have not covered their requirements are not willing to pay these prices, and the result has been a very quiet market. Too much significance should not be attached to the sales of small lots of standard and choice brands, which are reported at \$22 and \$22.50 for No. 1, since they reflect only the fact that a few are forced to pay a large price for some particular brand which is sold up, and can be secured only from second hands. As bearing on the situation, it is currently stated that a number of large consumers have not covered their wants at the recent season's sales, and that they must ulti-mately come into the market. On the other hand very little Southern iron has been sold thus far, the freight rates not having been settled yet. It is urged that for some time to come the supply from this source is not likely to be large, since the Southern works are receiving relatively better prices in the West. All these factors will, it is insisted, more than counterbalance any increase in the supply due to the blowing in of idle furnaces, and there is little danger so far of an invasion of Scotch iron, because the market there has not alone kept pace with us but has advanced faster relatively than our own. Some consideration is being given to the question of importing Cleveland Mill Pig.

Scotch Pig.-Advices from abroad chronicle a further advance, and quotations here have been advanced as follows, business being on a very moderate scale: Coltness, \$23 @ \$23.50, to arrive; Shotts and Langloans, \$22.50 @ \$23; Summerlee, \$22.50 @ \$23, to arrive; Clyde and Dalmellington, \$21 @ \$21.25 and Eglinton, \$20.50 @ \$21.

Bessemer Pig.-The market has been quiet. Foreign advices note an advance there, but no business has been done here, the only inquiry of any consequence in the market being a lot of 5000 tons for delivery in Indiana. We quote nominally \$20.25 @

Spiegeleisen.-The market is weaker, importers offering Spiegeleisen at lower figures without finding buyers. We quote 20 %, \$27.50 @ \$28.

Bar Iron.-The market is fairly active with a moderate demand which, however, there is some difficulty in filling. We quote Common, 1.85¢ @ 1.90¢; Medium, 1.90¢ @ 2.00¢, and Refined, 2.05¢ @ 2.20¢, for round lots on dock.

Structural Iron .- We quote according to quality, for Angles, 2.25¢ @ 2.50¢, delivered, and Tees at 2.75¢ @ 2.9¢, for round lots. Steel Angles are quoted 2.40# @ 2.60#, according to quality. Store quotations remain 2.65\$ @ 2.75\$ for Angles and 3\$ for Tees. American Beams and Channels are 3¢ base from dock for all orders.

Plates .- We quote for round lots: Common or Tank, 2.45¢ @ 2.6¢; Refined, 2.50\$ @ 2.60\$; Shell, 2.7\$ @ 2.8\$; Flange, 3.70¢ @ 3.8¢; Flange, Extra, 4¼¢ @ 4½¢. For small lots of Steel Plates the quotations are as follows: Tank, 2.90¢ @ 3¢; Ship, 3¢; Shell, 3¼¢ @ 3.50¢; Flange, 3.50¢ @ 3.75¢, and Fire-Box, 4¼¢ @

Steel Rails .- With the exception of a 10,000-ton lot sold by an Eastern mill for Chicago delivery at \$41.50, no transactions are reported. This is about equivalent to \$37.50 range, and but very few of the mills are in time, but no business is reported.

Billets .- During the week there have been sales of Foreign Billets aggregating about 7000 tons at \$31 @ \$31.50, the buyer taking risk of duty. They are now held at \$31.50 @ \$32, under the same conditions.

Rail Blooms.-There has been some inquiry, but prices, \$30 @ \$30.50, are too high

Wire Rods.-The market has stiffened further, and the lowest figure named, \$41.50, is coupled with the proviso that buyer takes the risk of duty. We quote \$41.75 @ \$42. active buying is expected in the near future.

Old Rails.-The market has been quiet and is less strong than it has been, Foreign Rails for shipment being freely offered at Doubles. We note a sale of 375 tons South. ern T's at \$25, and of 300 tons of Foreign I's ex ship at the same price. A lot of sooo tons of American T's were sold at \$22 50 at | wait, because they have confidence in better Houston, Tex., to go to mill near Louis-A number of large blocks of Foreign Rails are being offered, among them one of 9000 tons of German, which, it is surmised is the same which according to current rates will be fully maintained, as ceding week, an advance of 25¢ @ 50¢ ? Ge man newspapers was sold at 64.20 there is a very large amount of business to ton has been established, and the indications marks, f.o.b. Hamburg.

Rail Fastenings .- We quote Spikes 2.35¢ Bars may be quoted 2.10¢@ 2.20¢. Bolts and good demand, with large sales at 2.15¢@ sumers, notwithstanding as a rule, they are \$28; Cast Borings, \$13 @ \$14 gross; Car on the average find quite as much business

Philadelphia.

Office of The Iron Age, 220 South Fourth St., PHILADELPHIA, January 11, 1887.

It is somewhat difficult to form any definite opinion in regard to the condition of the Iron market. There is a hesitancy about it that is embarrassing to both buyer and seller. Applications for supplies are almost panies who do not book more than a part of regarded with suspicion, and it is quite a common thing to be told "nothing to offer many orders of that kind as they care to at the moment," or to receive an extreme quotation with an intimation that it is for limited quantities only. Under such conditions it is not to be expected that much business can be done, and it remains to be seen which side will give way first. If it is genuine scarcity buyers cannot wait long, and will have to pay whatever prices are asked; if it is simply a speculative feeling holders will not be many days before they show a disposition to let go, although the indications at present are quite in the other direction.

Pig Iron.-It is almost impossible to give quotations, as a large proportion of the brands usually sold in this market, are either withdrawn or are already under contract. The difficulty in securing material for prompt delivery leads to the opinion that there is a genuine scarcity, in which case higher prices are almost inevitable. Still it must be borne in mind that pretty much all the ordinary requirements of cona few weeks at all events. The ultimate about as follows: course of the market will be determined by supply and demand, or to be more exact, by the proportion between production and consumption. The demand is way ahead of the supply, but it is impossible to say how much of that may be speculative. If actual consumption is at all in proportion to the demand, prices must go higher, and very soon too. Taking everything into account, there is a general impression that the move ment is genuine, but with so much new capacity likely to be available, in course of a few months, it is difficult to see how a very much higher range of prices can be maintained. One reason, perhaps, for the nervous feeling in regard to prices, is because of the possibility if not probability of a war in Europe. This idea if not expressed is certainly in the minds of both buyers and sellers. The market does not at present depend on anything of that kind, but if it should occur an entirely new element would be introduced, and one that would give a new basis for values. Instead of receiving shipments from abroad, one or other, and perhaps all the combatants, would become buyers in our markets. This, of course, is merely what may happen, and while it does not have the slightest influence on quotations now those largely interested in the market keep a sharp look out for contingencies, of which this is not one of small importance. As regards actual sales during the week \$21 @ \$22.50 at tide has been the range for standard makes of No. 1 Foundry; \$19.50 @ \$20 for No. 2, and \$18 @ \$18.50 for Gray Forge. The supply is very light (there are no offerings whatever), but when buyers go after them small lots may be picked up here and there at the figures above named. In some cases 1000 ton lots have been obtained, but requests for more at same figures were promptly declined. The indications, therefore, point to higher prices; the only thing likely to prevent it is a falling off in the demand, which at present seems to be very improbable

Foreign Iron.-There is very little in quiry for either Bessemer or Spiegel, large buyers having made their contracts some time ago. Prices are firm, however, and nominally \$20.50 @ \$21 for Bessemer, and \$28.50 @ \$29 for 20 % Spiegel.

Blooms.-The market shows continued firmness, and almost everything on the list Quotations vary within a wide is higher than quoted a week ago. Nail will be represented by Mr. Frank A. Hayt. Slabs are in active demand at about \$32 @ a position to make any deliveries up to Sep. \$32.50, c.i.f. duty paid, but sellers quote tember. There is some inquiry beyond that \$33 @ \$33.50, and even these are subject to cable confirmation. The usual asking prices are about as follows: Rail Bloom at \$30 @ \$30.50, c.i f., duty paid; Nail Slabs, \$33 @ \$33.50; Sheet-Iron Billets, \$34 @ \$36 higher qualities for Boiler Plate, &c., \$38 American Blooms as follows: @ \$44. Charcoal Blooms, \$55 @ \$56; Runout Anthracite, \$45 @ \$46; Scrap Blooms, \$36, and Ore Blooms, \$35.50 @ \$36.

Muck Bars .- Supply and demand both small, owing to large sales some time ago, on which deliveries are now being made. Sellers quote \$33 @ \$33.50 at mill, and are Inquiries are beginning to come in and rather inclined to drop the first quotation of coal, and create an increased demand not unless the mill is not favorably situated for making deliveries.

Bar Iran,-Prices are very firm, and in some cases are held at a slight advance on \$25 for T's and a shade under \$26 for last week's quotations. The demand is not as urgent as it was, however, both sides being somewhat inclined to wait developments before increasing their lines. Sellers prices later on, and buyers, because they cannot place orders now without almost forcing an advance on the spot. But it is quite certain that if no advance is made and firmer, and, as compared with the precome on the market at an early date. Best at the present writing point to a further ad-Refined Bars are held at 2¢ @ 2.1¢ and me | vance before the close of this week. There 2.50¢, delivery New York. Angle Fish dium quality 1 85¢@ 1.9¢. Skelp Iron is in appears to be no falling off in demand; con-

emand is reported, but the mills have so much work on hand that the comparative paying an advance each succeeded week, dullness is hardly noticed. Sales of lots ranging from 50 to 200 tons each have been made at quoted rates, but large lots are not inquired for at the moment, although there is a great deal of work in sight, for which there must be a heavy demand at an early date. Meanwhile prices are firmly maintained at last week's quotations-viz.: Ordinary Plate, 2.40¢ @ 2.45¢, delivered; Tank, 2.45¢ @ 2.50¢; Shell, 2.7¢ @ 2.75¢; Flange, 3.5¢; Fire Box, 4.25¢; Steel Plates, Shell, 3.25¢ Flange, 3.5¢; Fire-Box, 41/2¢ @ 5¢.

Structural Iron.-Not much new busi ess coming in at present, but there is an abundance of work on hand, so that there is no change in the general position. In ome instances, vacancies can be found for a few orders this month's deliveries; but in others agents have been instructed to decline quoting, as the mills have more orders than they can get through with for some time to come. Prices are firm, and may be quoted about as follows: 2.4¢ @ 2.5¢ for Bridge Plate; 2.25¢ for Angles; 2.7¢ @ 2.8¢ for Tees, and 3¢ for Beams and Chan-

Sheet Iron.-Business is rather quiet at present, but the tendency is toward higher prices. Mills are just beginning to start up, sumers have been provided for, so that the and a pretty heavy demand is expected at current demand cannot be very heavy, for an early date, meanwhile quotations are

Best Refined, Nos. 26, 27 and 28 Best Refined, Nos. 18 to 25 Common, 14 & less than the above.	4 ¢
Best Bloom Sheets, Nos. 26 to 28	436¢
Blue Annealed. Best Bloom, Galvanized, discount	8 ¢

Steel Rails.-Prices are gradually working to a higher level, and \$39 at mill is now considered an inside quotation. There is a pretty good demand for small lots, but most of the large orders have been placed, so that the mills have very little room left for new business. The output during 1886 is given as something over 1,400,000 tons, with an estimated capacity for 1887 of about 1,750,-000 tons. Prices range from \$39 @ \$40, at mill, with nothing below the inside figure.

Old Rails.-The market is less active, \$25 to \$25.25 and \$25.75 respectively.

Scrap Iron .- Demand fair but not urgent, prices unchanged as follows: No. 1 Wrought Scrap, tidewater delivery, \$23.50 @ \$24; Selected do., \$24.50 @ \$25 50; No. 2 do., \$15 @ \$16.50; Turnings, \$14 @ \$14.50; Old Car Wheels, \$17 @ \$17.50; Old Steel Rails, \$21 @ \$22; Cast Scrap, \$15 @ \$16; do. Turnings, \$10 @ \$10.50. Old Fish Plates, \$28 (à \$29.

Wrought-Iron Pipe.—Business is quite active, most of the mills being sold up several weeks ahead. Prices are very firm. Discounts are as follows: Lap-Welded Black, 521/2 %; Butt Welded Black, 35 %; Butt Welded Galvanized, 25 %; Lap-Welded Galvanized, 355; Boiler Tubes, 45%.

Nails-Have been advanced, card rate from store being \$2.40, firm. Trade is brisk considering the season. A meeting of manufacturers will be held on the 13th inst., and some expect that the card rate will be still further advanced.

Messrs. William R. Hart & Co., of Philadelphia, have been appointed selling agents for Naylor & Co. in Pennsylvania, Delaware, Maryland, Virginia and West Virginia. For their Western district Messrs. W. R. Hart & Co. have opened an office at 84 Fourth avenue, Pittsburgh, where they

Pittsburgh.

Office of The Iron Age, 77 Fourth avenue, PITTSBURGH. PA., January 11, 1887.

The first week in the new year has been very encouraging for the Iron and Steel trade, and if it is a fair sample of those to follow there is no reason for complaint. The outlook for the spring trade is very promising; it never was better, so at least as regards this district. The extremely cold weather of the past week or two, which appears to have been general throughout the ountry, while affecting trade somewhat, will cause a largely-increased consumption only here but at other sources of supply The river coal operators have had a poor winter thus far, and it is to be hoped that it will close better than it opened. The project of having the General Government buy over the Monongahela Navigation Company is strongly supported by the river coal operators, and the indications are that it will be consummated. This is a matter in which consumers of coal South and West are deeply interested.

Pig Iron.-The market was more active

Plate and Tank Iron.-Only a moderate several months, are taking all the Iron that offers; they have become so accustomed to that they appear to take it as a matter of course. However, some of the more conservative furnacemen begin to think that it s about time to call a halt; they are apprehensive of increased importations of Foreign Iron; others claim that there is room for a further advance. There is a continued absence of speculation; business is still confined to producer and consumer, and while this continues there is not likely to be a collapse. We quote prices as follows:

No. 1 Gray Forge \$21.00 @	D 4	mos.
No. 2 Gray Forge 19.50 @	\$90,00,4	**
All-Ore Mill 21.00 @	21.50, 4	40
No. 1 Foundry 21.50 @		6.6
No. 2 Foundry 20,50 @		6.6
No. 3 Foundry 19.00 @		6.0
Charcoal Foundry 22.00 @	25,00,4	91
Cold-Blast Charcoal 27.00 @	80.06, 4	64
Bessemer Iron 22.00 @	22.50, 4	0.6

While thus far there have been no sales of Bessemer Iron above \$21.50 cash, it is expected that it will go to \$22 cash before the close of the present week. At the present writing there have been no sales of Gray Forge reported above \$20.50 cash. but it is intimated that it will go to \$21 cash, within the next few days.

Muck Bar .- There is still considerable inquiry, with but little offering; sales of several lots were made during the past week at \$35 cash, but there are now but few sellers under \$35.50 @ \$36, and we should not be surprised if these prices should be obtained before the close of the present week. As long as Pig Iron continues to advance, Muck Bar will of necessity have to follow: nearly all the mills making Muck for sale

Manufactured Iron.-Demand keeps up emarkably well for the season, mills are all busy and prices are reported steady on a basis of 2¢ for Bars, 60 days, 2 % off for cash. As buyers can see nothing in the near future to indicate lower prices they are ordering freely, and it looks now as if the mills would have all they can do right along. The advices from the South and West are of a most encouraging character as regards general business, and a good market for all kinds of Finished Iron is assured for some time to come. In addition to the regular merchant trade the railroads and at the advanced rates buyers seem to and manufacturers of Agricultural Implehesitate a little. Sales have been made at ments are large buyers; moreover the de-\$25.50 for T's and \$26 for Doubles, holders mand for Pipe Iron will soon open up; asking a slight advance, with bids at about already some large contracts have been made, and the probability is that there will be fully as much, if not more, wanted this year than last, when a number of mills made little or nothing else.

> Nails.—There has been more inquiry the past week, and it is evident that large buyers are apprehensive of higher prices. We advance our quotations to \$2.20, 60 days, 2 % off for cash in carlots and upward for Iron Nails, and 10¢ P keg additional for Steel Nails. It is understood here that Eastern makers are anxious for better prices, but they cannot advance much and hold their Western trade, for which they have been exceedingly anxious for some years Pittsburgh makers have not been making much effort as regards the Nail of the supply. trade for a year or more owing to the fact that there was little or nothing in it to them

Wrought Iron Pipe.-There is a fair business for the season, which will be considerably increased next month. No change in prices: Discount on Black Butt-Welded Pipe, in carlots and upward. 371/2 \$; Galvanized do., 371/2 %; Black Lap-Welded, 55 %; Galvanized do., 37 1/2 %; Boiler Tubes, 45 %; Casing, all sizes, 47 ½ %; 2 Inch Tubing, 16¢ P foot, net; 2 Inch Line-Pipe, 14¢; 8-Inch Drive-Pipe, \$1.40.

Old Rails.-The market for Old Iron Rails continues firm, with considerable inquiry, and prices are still tending upward. Foreign Tees are quotable at \$28.50 @ \$29 cash, delivered in Pittsburgh, and Doubles at \$29.50 @ \$30. A sale of 1000 tons Tees for prompt delivery reported at \$29. The freight is less on Rails from Philadelphia and Baltimore than from New York-13¢. 100 fb from the former points and 15¢. from New York. Little or nothing doing in American Rails, very few of them offering-Old Steel Rails, in the absence of sales, may be quoted nominally at \$24 @ \$25 for Short and \$26 @ \$27 for Long lengths.

Blooms, Billets, &c .- The offerings of Domestic Bessemer Blooms and Billets continue light, and prices are still tending upward; may be quoted at \$34 @ \$35. Nail Slabs are also firm and higher; may be quoted at \$33 @ \$34. Domestic Crop and Bloom Ends continue very scarce, and may be quoted, in the absence of sales, at \$25 @ \$25.50.

Steel Rails-Are higher, with considerable inquiry. We now quote Heavy Sections at \$39 cash, free on cars at works in Pittsburgh.

Railway Track Supplies .- Demand increasing and prices firm. Spikes, 2.60# @ 2.70¢ 30 days; Splice Bars, 2.10¢ @ 2.20¢ Track Bolts, 3¢ @ 3.10¢ with Square, and 3.20¢ @ 3.25¢ with Hexagon Nuts.

Old Waterial-Of all kinds continues carce, and prices are firm. No. 1 Wrought | ports to the association will show an entirely Scrap \$21.50 @ \$22, net ton; Wrought satisfactory demand. Turnings, \$16.50 @ \$17: Car Axles, \$27 @

Cleveland.

CLEVELAND, January 10, 1887.

Iron Ore.-Sales have been brisk for the past week and next year's prices are becoming more thoroughly settled. The advances over last season's rates range from 25¢ to \$1 % ton. During the week about 2500 tons of Gogebic Ore, Standard Grade, was sold at \$6 P ton. It is not believed that this amount will be realized for the product of all the mines in the district. There is a limited inquiry for Non-Bessemer Ores and not over 75,000 tons have been bargained for. During the week about 10,000 tons of ore have been forwarded to the furnaces from the local docks. It is believed that a compromise can be effected between the mine owners and vessel men regarding next season's carrying rates, but no charters have been made public. It is said by certain Ore men that a syndicate of vessel owners have offered a rate of \$1.00 from Ashland. \$1.65 from Marquette and \$1.45 from Escan-This is a drop of toe per ton from Ashland and Marquette and of 5¢ from Escanaba. It is thought probable everywhere that a schedule of rates very much like the above will be ag eed upon to Ohio and Lake Erie ports. This is an important question, involving the transportation of over 1,000.000 tons of Ore. Many furnace men were not aware, until the publication in The Iron Age last week of the official returns, that Cleveland was the greatest receiving and distributing point for Iron Ore in the country. It is altogether probable that not less than 1,750,000 tons will come to Cleveland during the season of 1887. The following are quotations :

5.75 @ 6.50 5.75 @ 6.35 5.00 @ 5.75 5.50 @ 6.00 Menominee Range Bessemer Ores.
Menominee Range Non-Bessemer Ores.
Ores.
Ogebic Range Ores.
Ores for Mill use.

Pig Iron.-"Please say that prices have gone high enough," replied a furnace man to whom we applied to-day for information regarding the Pig Iron market. There has been another jump upward during the week, and there seems a very general belief that within two months No. 1 Foundry will be quoted at \$25 cash. Mill Irons are bringing almost as much money as is paid for Foundry Iron. There has been a sale of Red Short Grey Forge Iron during the week at \$20 cash at furnace. For No. 1 Foundry \$22.25, Cleveland, four months, is quoted. No. I Bessemer Iron is selling for \$21 cash at the furnaces. There is an extraordinary demand for Charcoal Iron, and buyers are said to have offered \$22 for 10,000 tons of No. 5. Several hundred tons have been sold during the week at private terms. Dealers insist that as high as \$24 has been obtained for quantities of Nos. 3 and 4 Cleveland four months. The trend of the market is toward still higher prices, with no limit in view.

Old Rails.—There was a sale of a round lot during the week at \$28, and Old Wheels have brought \$21.75. Inquiry for nearly all grades of Scrap Iron is largely in excess

Birmingham.

BIRMINGHAM, ALA., January 10, 1887.

Pig Iron.-Prices here are to be determined rather from what is refused than from what is taken. There is less selling than ever, in spite of offers that only a few weeks ago would have almost irresistibly tempted the most sanguine of the manufacturers. One concern reports as much as \$17.50 net declined for a good quantity of No. 2 Foundry a little ahead of production. Several almost proportional offers for Mill Irons have met with the same response at other furnaces. Of the sales of the week, so far as is reported, \$17.50 net for No. 2 Foundry on four months' time is the top price. This came from one principal manufacturing centers of the West, which section, judging by the demand here, is especially "short" on iron. As for the volume of the demand, it is probable that business is steadily turned away from here now for the elementary reason that it is too much for the manufacturing capacity of the district than because prices do not come up to the aspirations of manufacturers. The Williamson furnace being stocked with coke is in operation again. The strike continues at the Eureka, and they conse quently are banked.

Finished Iron.-Having closed up on Pig Iron in prices, all at once, seems now to be even harder to get at current quotations. The local mills, the management of which take a rather bearish view of the market, are nevertheless declining business steadily For Merchant Iron the nominal card rate has been advanced 5¢ in the last week. being now \$2.15. Tank Iron is quoted at \$2.50, but no large order could be accommodated even at this round figure. In this line the mills are now at work on a 500-ton order for the four Pratt furnaces.

Nails .- Pending the meeting of the Western Association, prices are stationary-\$2.65 for Steel and \$2.40 for Iron. If business here is to be taken as an indication, the re-

Miscelianeous.-The smaller enterprises Square Nuts are 3¢ @ 3.10¢, and Bolts and Hexagon Nuts 3.20¢ @ 3.25¢.

Several of them having contracted sufficiently to cover their wants for \$22 @ \$23; Crucible do., \$25 @ \$26, Several of them are practically out of the

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market. The manager of the Chain works, while advertising everywhere for men, is sizes. In the kinds of Chains that the spring other sizes at proportionate rates. trade demands especially he has sold ahead some two months. It was only about two weeks ago that a machine made here was delivered at Huntingdon, W. Va., and already an order has come from the same concern for three more, as well as one from Pittsburgh, for one machine of the same kind. The advance in Pig Iron, with stationary prices for the product, has temporarily put an end to the manufacture of certain cheap specialties that have been made here in considerable bulk.

Coal and Coke.-Although they have all the furnaces running, only by a strain that is a little uncomfortable for all parties are the Pratt people able to supply their coke custom; so the progress of their extensions is watched with much interest. The shortage of domestic coal causes positive discom-For the last three weeks most of the yards have all their coal sold before they can get it, and several times for 24 or 48 hours there was not a ton to be had anywhere. At the present rate operators will before spring.

Cincinnatí.

Fig Iron.-The past week has been a

CINCINNATI, January 10, 1887.

most active one in Pig Iron, sales have been large, and inquiries have been larger. Buyers who covered contracts by the purchase of Pig up to the first of the year are now coming into the market again, to cover additional contracts more recently made, but throughout the year. they come upon a more stringent and more active market than when they last made purchases. This new demand, supplementing the already urgent inquiry, has materially assisted in a further advance of 50¢ d \$1 7 ton. There have been freer sellers apparently at the higher prices, but many of the sales bear evidence of premature birth. For instance, furnaces have named such prices for Iron which they thought would end the matter, but buyers have paid the prices asked without comment, and would probably have paid more had the furnaces demanded it. One lot of 12,000 tons of Southern Coke Mill Iron was reported sold 10 days since by the South Pittsburgh, of Tennessee, on the basis of \$19 in New York, but since that time the price has rapidly risen to \$20. During the past few days 1000 tons No. 1 Mill Southern pass through some of the most extensive Iron sold at \$19.50 and 1000 tons do. at beds of brown ore in the South. \$19.75; a like amount sold in St. Louis at \$20, and to-day there are buyers at a point east of Cincinnati for 1000 tons equivalent to \$20 here. Sales of No. 2 Foundry Southern have been made at \$21, 1000 tons selling at this rate a few days since; 1000 tons Open Bright Iron also sold at \$20.25 B ton. These sales are of course made for future delivery, some of them extending through the year, but most of them for delivery from February to June. Sales of several 100 and also several thousand tons of Jackson County Softeners, Ashland, Virginia and Lake Superior Iron have been made at full prices and for late delivery. It is approximately estimated that about 16,000 tons of different kinds of Iron have been sold by Cincinnati during the week just closed. Besides this there have been inquiries for one lot of 12,000 and one lot of 24.-000 tons. There is some reason to believe that besides the urgent demand from mills and foundries and other consumers of Pig perienced in making deliveries, arising from various causes, and during the past few days running ice in the Ohio River has made necessary the suspension of paviga-The prices for Pig Iron now current here for cash are about as follows :

dete to: one		
Charcoal Foundry.		
Hanging Rock, No. 1. Hanging Rock, No. 2 Southeru No. 1 Southern No. 2.	22,50 @ 23,00 @ 22,00 @	23.50 23.50
Coal and Coke Founds	y.	
Ohio Soft Stonecoal, No. 1. Ohio Soft Stonecoal, No. 2. Southern Coke, No. 1. Southern Coke, No. 2. Southern Coke, No. 3. Ohio and West Pennsylvania Coke, No. 1 Ohio and West Pennsylvania Coke, No. 3	20.50 @ 19.50 @ 21.00 @ 20.00 @ 21.00 @ 20.00 @ 20.00 @ 20.00 @ 20.00 @ 20.00 @	91,00 90.50 22,00
Forge.		
Strong Neutral Coke	19.50 @ 18.00 @ 18.50 @	19.00
30.000		27.00
Southern Car-Wheel. Hanging Rock, Cold Blast Hanging Rock, Warm Blast Lake Superior and Malleable	25.00 @ 27.00 @ 23.00 @ 26.00 @	98.00 94.00
Manufactured Iron-Is at	trong v	vith a

continued good demand at full prices, and it is only a question of a few days when a further advance will be made by the concerted action of the local mills. We quote : Bar Iron, 1.95# @ 2#; Charcoal Bar Iron, 2.95# @ 3#; Sheet Iron, Boiled, Nos. 10 to 27. 2. 1/2 @ 3¢; Sheet Iron, Charcoal, Nos. 15 to 25, 31 @ 4 P B.

Scrap.-There is an urgent demand for Scrap, but it is so scarce that prices are little better than nominal. Old Rails or Old little better than nominal. Old Rails or Old
Wheels would sell readily at \$26. and \$18.50
per ton respectively, but none are at preshad not absorbed the business so completely

Nails-Have remained firm, and have met a good demand. 10d. @ 60d. sell at declining all orders except for extra large \$2.40 % keg for Iron and \$2.50 for Steel :

Chattanooga.

Office of The Iron Age, Carter and Ninth Sts., CHATTANOOGA, TENN., January 10, 1887.

General business among merchants has sympathized fully with all other conditions, and most of them are having all they can do. A very interesting feature of trade at the present time is that very little credit is asked. Many transactions are for cash, and at the most only short credits are needed. The returns of the banks are showing large deposits. At the same time a large discount and exchange business is being done, which cannot be otherwise than profitable to them. The railroad lines are being worked to their utmost capacities, and a very prominent of household goods and family effects they are bringing to this section.

Pig Iron.-Sales have been made during the past week showing an advance of about 50 \$ \$ ton. At the same time it would be not be able to catch up with their orders difficult to place large orders at the present time on a basis of \$18.50 for No. 1 at the furnace. A number of small lots have been sold at this figure, and quite a large lot of Gray Forge sold at \$16.75. These figures show about what the tendency of prices is, with a general feeling that they will go still higher. The demand from the Southern foundries has shown an increase since the first of the year, and advices from these quarters indicate a large business in the immediate future, which will probably extend

Miscellaneous. - The Dixie Powder Company, which commenced operations about a year ago, have experienced unprecedented and unexpected success in the sale of their dynamite. Their output is about 2 tons per day, and they have orders entered for several months to come. They are now making arrangements to add to their works the manufacture of Black Powder for blasting purposes. A transaction of much importance has taken place at Anniston, which is the sale of the property of the Woodstock Iron and Steel Company, with all of their various ore and coal holdings, together with property of the Anniston Land and Improvement Company, for the sum of \$3,000,000, a like sum to be paid in addition to erect two large coke furnaces and also a line

Detroit.

CHARLES HIMROD & Co., dealers in Pig Iron, Detroit, Mich., report, underdate of January 10, 1887, as follows: Unusual activity and strong demand had forced the price of Lake Superior Charcoal Iron up \$1 per ton since our last report to you. A great many quotations made for this grade of metal are nominal owing to short stocks, and all the way from \$23 to \$26 cash is demanded for Iron here. This call for iron seems to be based on such permanent and legitimate grounds that some manufacturers of Iron here talk as high as \$30 for Pig Iron in the near future. This may be a little wild, but there can be no doubt, unless some unlookedfor supply springs up, that Iron will command a price probably averaging for 1887 \$26 here for Lake Superior Charcoal Iron.
The demand for Old Wheels continues large, and very few lots to be obtained. Probably the most prominent factor in the recent advance on Lake Superior Charcoal Iron is the scarcity of Old Wheels, compelling wheel-makers to replace the Old Wheel

1	Lake Superior Charcoal, an num-			
1	bers	\$23.00	3	\$24 00
1	Lake Superior Coke, All Ore	22,00	ã	23.00
1	Lake Superior Coke, Cinder Mixed.	20.00	ã	20.50
1	Standard Ohio Blackbands			
1	Southern No. 2			
4	Southern Silvery	19.00	0	20.00
1	Jackson County, Ohio, Silvery	20.50	68	21.50
1	American Old Iron Rails			
1	Old Wheels	21.50	0	22.50
ı				

Louisville.

W. B. BELENAP & Co., Louisville, report as follows, under date of January 10, 1887: Business during the holidays and since then up to the present date has been comparatively dull. The new year was usbered in with an extreme cold wave which tied everything up in ice bonds, and has kept them so ever since. Navigation has been suspended on the river, and people are rather inclined to hug the stoves than to exert themselves in any way out of doors. There has been no weakening tendency, however, developed in Iron. On the contrary, some of the branches, such as Sheet Iron, show additional strength. They were the last to respond to the upward movement, but once fully recognized hold the advance remarkably well. The only instances of weakness are among such goods as Planes, where combination has broken tons, perhaps 2000 tons. This will not only loose and free range is given to a long pent up determination to do the public justice. Bar Iron.—There is an excellent demand, mainly from active Southern centers, where

there is much immediate use in the way of construction, &c. Steel.-There is a good demand for Steel as well, finer grades for contractors' and machinists' use. Plow Steel, too, is feeling machinists' use. Plow Steel, too, is feeling the season, and the country makers are be ginning to buy their stock. There is no There is not

Nails—Are very firm at late advances, and there is talk of still further advance. This will doubtless take place if raw material bolds strong enough to justify. Stocks are not heavy, and good inquiries come in

Wire.—There is a good demand for Wire, both Plain and Barbed, although mainly from dealers, as it is impossible to put up fences during the present stringent weather. The snow has extended far south into Alabama and the freezing weather even into Florida, although this year the orange crop

has been spared.

With the advent of a little sunshine and the incident January thaw we believe trade will fully ceme up to the somewhat sanguine expectations of the country at large.

demand and prices gradually hardened, though not in proportion with the advance on the other side, so that a further improve-

Coal Market.

to a large extent in the delivery of Bituminous, is suspended among the wholesale dealfeature of their freight is the large amount by the strike of laborers, which commenced about 10 days ago. It originated in a demand by the shovelers at South Amboy for for 21/2 P ton more than they were receiving, and, the Coal trimmers also bec ming dissatisfied, all the seven shipping ports in the neighborhood of New York City are involved. So far as the Pennsylvania Coal ompany and Delaware and Hudson are ncerned the position of the trimmers is onsidered indefensible, inasmuch as these ompanies some months ago had boats built of a description that require no trimming, but the laborers demand payment precisely as if the work had been done. In the present position of affairs the end cannot be seen, although the Coal company agents profess to have no fears of a Coal famine in any event. On the first alarm their books filled up with orders for delivery at as early a date as circumstances may permit, but no more are taken at present, as their engagements have reached the full limit. Consequently they confine themselves to filling their contracts, and specially favoring old customers. The same is true of the Bituminous Coal companies as to new orders their books being already full, but they are in no way involved in the strike, and, as much of their Coal comes directly from Baltimore, no difficulty is experienced aside from obstruction by ice and inadequate means of transportation. For these reasons they are able simply to fill contracts, mainly in the supply of steamships, and are unable to accept the extravagant prices sometimes offered, even if so dis posed. The Anthracite dealers have, for obvious reasons, made no new advance, as such action would only be farcical so long as their supplies are virtually beyond reach. Altogether there are supposed to be some 250,000 tons of Anthracite at the docks Individuals in a number of instances are supplying Coal at an advance, and retailers are said to get sometimes as high as \$7. The steam company and elevated railroads have arrangements which may hold good in any emergency unless the miners make The purchasing prices offered by dealers common cause with men already out, in which case the embarrassment would be much more serious. In the Eastern States the interruption of Coal shipments from New York begins to be felt. The total amount of Anthracite mined thus far in the year 1886 is 32,302,614 tons, compared with 31,623,529 tons for the same period in 1885, an increase of 679,113 tons.

Metal Market.

Copper.—Has been excessively dull and lower. Lake Ingot Spot has been offered on that there is a speculative demand. Cash sales of speculative Iron which have been made recently are about over, holders having either disposed of stock or refusing to entertain propositions under prices which are at the present time quite above the market. There is still much difficulty experienced in making deliveries, arising from tired of supporting a market in which they Other kinds are similarly affected, and are held for better times to come, in which they may or may not succeed. Meanwhile Chili Bars have fluctuated in the London market After a while the official returns of our Domestic Copper production will be published in detail. They are looked forward to with considerable interest on this side and in Europe. Export of Ingot Copper from the United States during the first 11 months of last year, 17,427,798 pounds, against 34,527,-975 pounds in 1885.

Tip.-We have had a steady advance in Tin since our last weekly report. The annual statistics of the trade both here and in Europe have opened the eyes of those who hitherto have ignored the strides which our increasing consumption has been making. The latter has not been less than 13,000 tons during 1886, with a promise that this year it will again be exceeded by fully 1500 require increased shipments this way, but also larger reserves in the hands of our dealers, the London visible supply having come down to the lowest point seen for many a year past; hence we cannot expect to go on drawing from there as we have been in last few months, for London in reality has orders with little or no interruption.

20 tons sold has been at a higher price, raising the price of spot from 22¢ to 221/4¢; January, from 22¢ to 22 1/4¢; February, from 22.10¢ to 22.35¢; March and April, 22.45¢ bid and refused. The consumptive demand bas started up thoroughly and is making great inroads into our small stock. Net import of Tin into the United States during the first II months of last year, II,605 tons, against 9431 in 1885 Increase, 2174 tons, being at the rate of 190 tons per month. Tin Plates -There has been a fair on the other side, so that a further improvement up to 25¢ p box is still looked for. In South Wales there has been no change in the labor troubles and output. Raw ma-Business in the Anthracite Coal trade, and terial continues to advance over there. We quote, P box : Siemens-Martin Steel, Char al finish, \$5; ditto, Coke finish, \$4.55; Ternes, \$4 20 @ \$4.30, and Coke, \$4.30 @ \$4.35. Net import of Tin Plates into the United States during the past 11 months of

Lead.—There have been sales in a mod erate way of Chemical and other Common Domestic at 4.20¢, but we have to call the market at the close 4 20¢ @ 4.25¢, nominally, there being indications that we are on the eve of an improvement. Meanwhile St. Louis has been but moderately active at 3.92 1/2 ¢, and Chicago at 4¢. Everybody seems to agree that Lead is in a sound position. The official returns of production when out will probably corroborate these views. In London Soft Spanish is £12. 12/6, and English Pig, £12. 17/6, an advance of s/in the latter

Spelter and Zinc.-While dealings have een restricted, the hardening tendency has nevertheless made some headway, and we can now quote Common Domestic \$4.60 \$4.80, and Silesian \$4.00. The latter again advanced 2/6 in London, now coming £14. 10/; Bertha Refined, 8¢. Sheet Zinc is steady at \$5.55 @ \$5.60 Domestic.

Antimony. - The market is steady, with fair jobbing demand; Hallett at 734¢, Cookson at of.

New York Metal Exchange.

1 4	HOM TO	IN MEGH	ri Excusui	ge.	
The fo	ollowing	sales are	reported:		
	THU	RDSAY, Jai	nuary 6.		
50 tons T 10 tons T 10 tons T 10 tons T	in, ship in, spot in, Febru in, spot	ary		22,321, 22,05 22,30 22,10	60000
	FR	DAY, Janu	iary 7.		
10 tons T	ın, Febru	ary	ary 10.	223, 22,30	60
10 tons Ti		ary	uary 11.	22,85	¢
10 tons T	in, Janua	гу	************	22,35	¢

Old Metals, Rags, &c.

ı	are as follows:
١	
d	Light Copper
١	Copper Bottoms 2 h, @ .0712
П	Brass, Heavy 9 b, @ .07
١	Brass, Light 9 75, @ .05
١	Composition
1	Lead, Heavy 2 h, \$0.03% @ .04
1	Tea Lead
1	Zinc 18 b, .08 @ .0314
	Wrought Iron
	Light Iron
1	Stove Plate Iron
	Machinery Iron 2 ton, 14.00 @ 14.50
1	Grate Bars 12 ton, @ 7.00
	White No. 1 8 b, .09% @ .09%
1	White No. 2 9 b, .01% 6 .01%
	Canvas, Linen, No .1 10 D0414 @ .0436
.	Canvas, Cotton, No. 1
l	Canvas, No. 2 10 b, .0032 @ .0212
	Seconds P b, .01 @ .011/2
1	Soft Woolens # B, .051/4 @ .06
	Mixed Rags 9 h, .01 @ .0114
. 1	Gunny Bagging, No. 1 P b, .01 9-16 @ .01 11-16
	Jute Butts
	Book Stock 19 th, .00% @ .01%
d	Newspapers
1	Waste Paper 19 15, .0014 @ .0016
)	Kentucky Bagging 10 35, .0214 @ .0214
,	Kentucky Bale Rope 2 1
	Kentucky Bagging 9 b0214 @ .0208
.	

The Treasury Department has received from the Attorney-General a communica-tion stating that he concurs in the sugges a follows: January 6, £39 10/; January 7 and 8, £39. 7/6; January 10, £39. 5/; January 11, £39. and to day, £39. 2/6. Best Selected has not varied from £43. 10/. shown to be due by the Custom-House records, and that he will direct that a writ of error be taken in one of the cases so as to bring the disputed points before the Supreme Court. Assistant-Secretary Fairchild has addressed a letter to the Collector at New York in accordance with these views

> Representative Tilbman's bill, introduced in the House on Monday, to prevent the destruction of human life by fire in railroad accidents forbids the use, in mail or passenger cars, of any stove or heating apparatus containing inflamable substance, except illuminating gas. The bill also requires the cars to be heated by steam and lighted by gas or electricity, and to carry saws, hammers and other tools for wrecking purposes. It provides for the punishment of railroad directors who neglect to observe its provisions.

The Coal Embargo.-The crisis which has overtaken the coal trade in consequence of the strike of shovellers and trimmers, which commenced about ten days ago, looks more serious, but thus far the larger coal companies in the anthracite and bituminous the habit of doing fast year, especially the branches alike, are able to fill their contract nothing to spare us. Prices there have gradually advanced from £100, spot Straits, to £101. 7/6, and Futures from £101 to £102. 10/, with a large business doing fill them. Fortunately, there are consider daily. Here transactions in a large way

have been very moderate, but every 10 or dividuals which are accessible, although at an advance. Thus the regular companies disclaim having made any advance, and it is not uncharitable to say for the simple reason that they are unable to take advantage of the situation. They profess to believe that the present derangement is only temporary and that a coal famine need not be feared, although it does not yet appear that either side have made any overtures for a settlement of differences. In the bituminous trade obstruction by ice at Baltimore is a serious hindrance, but supplies for steamships under existing contracts are not interrupted, and other large consumers, such as the steam company and elevated rail-roads, depend on special arrangements to carry them through.

Shipbuilding in Great Britain.

With the exception of Barrow in-Furness, Hull, and two or three small ports, the returns of the ships built in the United Kingdom during the present year show a large reduction from the work turned out in 1885 and a very beavy falling off indeed from the United States during the past 11 months of 1886, 238,490 tons, against 212,350 in 1885. Increase, 26,140 tons, being at the rate of 2,377 tons per month.

Lead.—There have been sales in a mod. small craft not accounted for in the list be-low. In 1885 the output was 522,553, so that the decrease this year on last is 68,053 tons, and on 1883 no less than 795,500, or nearly double the work turned out during the past 12 months. The Clyde, with about firms, large and small, again heads the list with 172.440 tons, against 193,458 last year and 417,881 tons in 1883. The list includes Government war vessels. At Barrow, Hull and on the Tyne vessels of war have also been turned out. Another noticeable feature of the returns is that steel is rapidly superseding iron as the material for con-struction, 68½ per cent of the total output on the Clyde being built of steel, and at the other large centers steel has been used quite as much as, if not more than, iron. The change from compound to triple expansion engines, which commenced a year or two ago, has become very marked, and next year the latter kind of engine will probably be almost universally in vogue. The pros-pects for 1887 are pretty generally regarded as better than at the commencement of the year. The following is a comparative statement of work done in the last two years:

Scotland.		
The Clyde Dundee Leith Grangemouth Aberdeen Peterhead Ayr Culzean Paisley .	1886, Tons, 172,440 8,143 5,540 2,627 1,540 45 561 228 2,050	1885, Tone, 198,458 8,758 8,193 1,500 6,378 956 611 1,287
Total	198,174	221,091
The Tyne. Northeast Ports. The Wear The Tees The Hartlepools Blyth		102,998 61,781 34,338 33,080 1,215
Whitby	1,950	
Total	177,236	288,862
Other English Por	ts.	
The Humber Barrow Southampton The Mersey Whitehaven Workington Chepstow	11,650 18,228 17,667 21,787 2,804 3,746	6,191 4,058 19,198 27,596 1,860 398
Maryport	2,911	1,548
Total	78,387	60,844
Belfast	5,202 214	7,262
Total	5 416	7,262

There has long been a rivalry between the two great centers of shipbuilding—the Clyde and the ports on the Northeast Coast—and this year the 37 firms in the latter district have launched 130 vessels, of 177.226 tons; while the 51 firms on the Clyde have compared to the pleted 166 vessels, of 172,440 tons. Below we give a table showing the output in each district during the last four years:

-	1883.	1884.	1885.	1886.
	417,881	299,110	193,458	172,440
	216,573 212,818 81,795	124,221 99,557 80,326	102,998 61,781 84,838	82,760 56,699 30,476
The Hartle- pools Blyth Whitby	62,065 5,869 18,662	30,963 5,067 6,803	89,030 1,215	15,298 48 1,950
m - 1	ROE OFF	and 092	099 940	127 000

It may be remarked that the building of argo-carrying steamers was comparatively lack in 1836, and there is further not so large a proportion of sailing vessels as there was in 1885. The largest tonnage launched this year was by Messrs. Russell & Co. on the Clyde, with 29.843 tons, or about 11,000 tons less than in 1885. The second place is taken by Messrs John Elder & Co., also on The second place is the Clyde, with 23 432 tons; the third by Sir W. G. Armstrong, Mitchell & Co., Limited, of Newcastle-on-Tyne, with 21,076 tons, and the fourth by Palmer's Shipbuilding and Iron Company, with 20,728 tons.
During the last six years the aggregate of
the vessels launched has been as under:

																							3	٩	Losi	production
Yea	z	٥.																								Tons.
BHI						,	,		,			۰	۰			۰	۰									1,000,000
HERE														0												1,200,000
868																										1,2000,00A)
864						,		,		÷	,															750,000
885									,	•			×		,		*	0	*	*						540,422
866							e											*								478,675

It is not generally known that Erie Pa., produces more engines and boilers than any one city in the United States. There are nine foundries and machine shops, the largest manufacturers of engines being the Erie City Iron Works, the Stearns Mfg. Company, the Skinner Engine Company, the Nagle Works and the Ball Engine Company. The capacity of the nine shops is 10 engines a day,

Trade Report.

General Hardware.

The past week has been characterized by a continued movement in the direction of better prices, especially in heavy goods, other lines sympatbizing, though in most cases without any quotable change in price. The demand is fair, and the view freely expressed that the prospects for a satisfactory season's business are exceptionally encouraging. Manufacturers have been to only a moderate extent revising their lists. Travelers are setting out, and preparations actively making for the opening trade. The special features of the market are noted below.

BARB WIRE.

Four-point Galvanized Barbed Wire has advanced to 41/8¢ for carload lots, at which price a fair amount of business has been done for prompt and early delivery. As we go to press the meeting of the Plain Wire Association is in session in this city. The rapid rise in rods, for which the lowest quotation is now \$41.50 @ \$42, will probably lead to higher prices of Plain Wire, the feeling of manufacturers being strongly in favor of that course.

NAILS.

During the week the price has advanced to \$2.30 for carload lots of Iron Nails on dock, and to \$2 40 from store. The market, which is moderately active, closes

By telegraph we have received the following from Pittsburgh: "The regular monthly meeting of the Western Nail Association was held at the Monongahela House, Pittsburgh, to-day. There was a very full attendance, every mill west of the mountains being represented. The card rate on Nails was advanced to \$2.60, less 10 cents per keg in carload lots, 2 per cent. off for cash."

Cobb's Iron and Nail Company, at Aurora Ind., announces under date of the 6th, that they have resumed making Nails, their nailers, after a strike of about six months, having returned to work on their Patent Nail Machines.

MISCELLANEOUS PRICES.

The agreement between the manufacturers of Planes having terminated by limitation, it was not found feasible to renew it, and the companies are accordingly in the open market without the restrictions which have the announcement of decidedly lower prices, with some uncertainty as to what the course of the market will be. It is generally anticipated that the competition will be animated tions before long. The competition is, howand that low prices will be made. The market is at present irregular and unsettled. The Auburn Tool Company, Auburn, N. Y., issues under date January 1 the following

Per ct. Dis. Fancy Planes—Auburn Tool Company...
Bench Planes—Auburn Tool Company (with
Thistie Irons)
Bench Planes—New York Tool Company (with
Thistie Irons)
Bench Planes—Without Irons.
Plane Irons—Celebrated Thistie Brand (warranted).

Bench Screws.
Hand Screws.
Hand Screws.
Hand Screws.
Bench Planes—With English Irons.
Gauges—Marking, Mortise, Panel and Siltting.
Coopers' Wood Tools.
Turned Wooden Ware.
Mallets—Carpenters' and Tinners'.
Handles—Plane.
Handles—Saw.
Handles—Awl, File and Chisel
Handles—Auger.

Few lines of manufacturing in the coun try have been for some time more thoroughly than has been the Emery business, and its demoralization has been so complete, and of such long standing that many have perhaps regarded it as permanent. We are glad, however, to note an improvement, and to unsatisfactory to those engaged in them record the fact that at a meeting of the manufacturers of the United States held in this city January 5, an association was formed for the advancement of their mutual interests, when it was decided to advance prices, adopting a uniform price list with quantity discounts, taking effect Janu-

The present very unusual price of Sisal Cordage as compared with Manilla, is owing principally to the short crop and the largely increased demand of it for binder twine.

An advance of something like to pe cent. has been made in Axles, and the goods are regarded as firm at the new price.

Another slight advance has been made in the price of Coil and Fancy Chains, of which definite announcements have been made by some manufacturers, others simply withdrawing quotations.

The base discount on Coffee Mills has been changed from 45 to 40 per cent., the price of the goods being now discount 40 and 10 and 2 per cent. The association continues as before, without change in membership, and its prices are regarded as firm.

After the long continued demoralization in the File market and the very low prices which have prevailed, there are indications of a better condition of things, the manufacturers generally withdrawing quotations, or announcing somewhat higher prices. The decidedly increased cost of steel is referred to as necessitating this action.

The manufacturers of Sledges and Heavy

advance in the goods.

Revised discounts on Saws will soon be announced by some of the manufacturers, in sympathy with the new discounts of

The Wire market is firm, and slightly advanced prices are named. The reported success of the efforts which have been making a view to the concerted action of the nanufacturers tends to give the market decided strength.

The manufacturers of Wrought-Iron Goods held a meeting in this city to day, at which they adopted a revised list and discount, representing a considerable advance in the price of the goods.

The Walker Wrench Company, 88 Cham pers street, New York, announce, January 10, that owing to the increased cost of material and labor, they are compelled to ad vance prices on Walker's Steel Wrenches to discount 55 per cent from list, with a specia discount of 10 per cent. for specified orders of 50 dozen for immediate shipment. Terms, 60 days, with 3 per cent. discount for cash in 10 days.

A. Field & Sons, Taunton, Mass., announce, January 7, that owing to the advance already made in prices of material employed in the manufacture of Tacks and small Nails, and in view of the fact that goods on their Hardware list of September 1, 1882, are selling below cost, they withdraw all quotations, to take effect January 10, 1887.

The Southern White Lead Company, St. Louis, sends us the following price list, January 1, 1887 with the usual rebates:

It is noticeable, while there is a general improvement in the prices of many goods, especially those which have been exceptionally low, that Shovels and Spades remain without special change, there being, in fact, some indications within a short time that point to lower quotations than have recently limited them as to the price and terms of been made. With the advance in Iron and sale of the goods. The immediate result is Steel and the present strength of these lines and the increased cost of hundles, it is not unlikely that the manufacturers will be compelled to withdraw their extreme quotaever, animated, and it remains to be seen whether any advance which may be made will more than cover the increased cost of the goods.

> The William Rogers Mfg. Company, Hartford, Conn., issue a circular in which, on account of the increased cost of Steel Blanks, they announce the following advanced prices on their Knives, the terms being four months, subject only to the usual discounts for 10 or 30 days :

No. 12 Medium Knives and Forks, plain or No. 12 Table Fruit Knives, plain or satin.
No. 12 Solid Steel Nut Picks, plain or satin.
No. 12 Solid Steel Butter Knives, plain or satin.
No. 12 Solid Steel Butter Knives, plain or satin.
No. 12 Solid Steel Nut Cracks, No. 1
No. 12 Solid Steel Nut Cracks, No. 2
R. C. Co. Al. Medium Knives and Forks, plain or satin. 1.85

plain or satin.

R. C. Co. Al Dessert Knives and Forks, plain or satin.

made by the Rhode Island Horse Shoe Company, Providence, R. I., that a portion of their works was 7th inst. They will at once rebuild, and hope before the expiration of two months to again be in full running order.

Our readers will observe the advertisement on page 26 in which Tit us & Babcock, Rochester, N. Y., illustrate Cliff's Bolster Spring and give list prices.

William E. Sabin, South Brooklyn, N. Y. who has been known to the Hardware trade for the past 20 years, and formerly represented Peck, Stow & Wilcox Company, will in future represent the Herrmann-Parker Hardware Mfg. Company, St. Louis, an announcement which will be of special interest to buyers along the Missouri and Mississippi Rivers, as well as in the East. The policy of the Herrmann-Parker Hard ware Mfg. Company to sell to none but jobbers and the wholesale dealers will, it is intimated, be more strictly adhered to than

The Shepard Hardware Company, Bufthe course of the year. It is a convenient vice to those who receive it.

adopted a revised list with a different classi- also referring to new goods not illustrated fication, and a discount which represents an in their former catalogue. These include Riveting Hammers, Machinists' Ball-Pein Hammers and Blacksmiths' Hand Hammers.

The dissolution of the firm of P. Tettelbach & Son, Cleveland, Ohio, P. Tettelbach, Henry Disston & Sons, given in our last Sr., retiring, is announced, January 3. Peter Tettelbach, Jr., and John Tettelbach have formed a copartnership under the firm name of P. & J. Tettelbach, and will continue the business at 613-617 Pearl street.

> The Lansing Wheelbarrow Company, Lansing, Mich., advise us that they have recently purchased the entire plant of the Leader Mfg. Company, Sterling, Ill., and are now making their full line of Gas-Pipe and Iron Frame Barrows. Of these goods they expect to make eight styles.

Our readers will observe the advertise ment on page 26, in which Porter & Woos-Easy Bolt Clipper, of which they also issue descriptive circulars explaining its special tion of Hardwaremen. features, calling attention to its advantages and giving testimonials in regard to it These circulars have been sent out widely not only in this, but also in other countries.

F. H. Beecher, successor to French, Swift & Co., Seymour, Conn., is now represented in this city by the Livingston Horse Nail Company, 107 Reade street, New York.

The Walpole Emery Mills, South Walpole, Mass., issue an exceedingly neat calendar for the present year, and one which has artistic excellence which is not possessed by many that we have seen.

Amidon & White, Buffalo, N. Y., advise us that they are about to bring out a new Ratchet Brace, which in view of its merit, they intend to call the "Eclipse." We will give our readers more definite information in regard to it in a subsequent issue

Announcement is made under date Jan uary 1 by Joseph Scheider and Emanuel Ettenheimer, Brooklyn, E. D., N. Y., that they have formed a co partnership under the name and style of Joseph Scheider & Co., and have purchased the buildings, ma chinery, tools, stock, &c., of the Manhattan Stamping Works. They will continue the business of manufacturing Plain and Retinned Stamped Ware, Tinners' Trimmings, Japanned and Pieced Wares with increased facilities.

Ferdinand Philips and David Townsend, onstituting the firm of Philips & Townsend, Philadelphia, announce, under date of December 18, that Edward Rowland and Charles Rowland have been admitted as partners in the business which will be continued under the firm name of Philips, Townsend & Co. At the same time they call attention to the P. & T. Wire Nails. which they are manufacturers, and allude specially to their Barbed Nail, patented November 30, 1886, as possessing special They claim that it will drive dvantages. like a smooth Nail without injury to the fibers of the wood, and hold exceptionally well They allude to its special adaptation for car Nails, box or roofing Nails and other uses where great holding power is required. A. Haines. 90 Chambers street, New York, is agent for this line of Wire Nails.

J. E. Quackenbush & Son, manufacturers of Builders' Hardware, Knobs, &c., announce to the trade their removal from 535 Eighth avenue, New York, to 313 and 315 West Thirty-seventh street, where they expect to be in full running order in a week or 10 days, when with double the facilities they have had heretofore, they hope to be able to fill all orders promptly.

The Herrmann-Parker Hardware Mfg. Company, St. Louis, Mo.. issue a pleasant and appropriate circular to their customers. in which they express their appreciation of the orders that they have intrusted to them in the past and express the hope that in the to obtain their quotations before placing orders. It is also intimated that they with destroyed by fire on the morning of the draw quotations, expecting soon to be able to announce new prices.

Girard & Peiler, Hartford, Conn., issue a square feet and decimal fractions thereof for the use of dealers in Wire Cloths and other goods sold by square measure. It gives the number of square feet of the different widths of Wire Cloth from I to 100 feet in length, and also a corresponding table for the odd inches, so as to facilitate obtaining the measurements and price of such goods of any width or length. It is intended for use in the office and on the counter, and is sold mounted on carboard at The recent advances were in most cases so cents per copy. The firm have other tables in preparation which are not yet offered to the trade.

The Kilmer Mfg. Company, Schenectady, N. Y., issue a calendar for 1887, which calls attention to their Arrow and Adjustable Bale Ties, Ornamental Fencing, Wire, &c. The calendar itself is neatly and clearly printed, and will be of service. In sending falo, N. Y., issue a combined calendar and it out they refer to the past year as having diary, which for each day in the year has a been successful, both in regard to the amount blank space to receive memoranda. It is of goods sold and the results accomplished, so arranged that the record can be pre- and allude to their increased patronage as served after it has served its purpose during indicating a gratifying confidence in their goods. During the past year they have not

showing the extensive line of Refrigerators anticipations. of their manufacture, with full explanation of the special features of their construction. An illustration is given of their works, which are stated to be of the following shop, 425 x 45 teet.; wood-working machine shop, 100 x 74 feet; warehouses, 98 x 38 feet and 80 x 56 feet, with wing 40 x 36 They also send out in tasty form their New Year's greeting.

By their special announcement on page 19, it will be seen that Clark, Widdifield & Co., wholesale Hardware dealers, Cincinnati, Ohio, are closing out their stock, which is stated to be worth \$50,000, as they have decided to discontinue business. Particulars in regard to the lines of goods which are ter, Boston. Mass., call attention to their thus put on the market are given in their advertisement, which is deserving the atten-

> W. A. Tapscott and W. H. Hibberd have name of Tapscott & Hibberd to carry on a Tinners' supply business, 24 Cliff street, New York. They will keep a line of Tinners' Tools and Machines, Presses, Dies and Can-Makers' Tools, Rivets, Stove Bolts, Rosin, Mica, &c., and will also supply Tin Plate, Sheet Iron and Zinc, Copper and Brass goods, together with light Hardware. Mr. Tapscott has been connected with the firm of Clement M. Biddle & Co. for a number of years, and Mr. Hibberd was with Mr. Brombacher, having charge of his business up to the time of his death. They will have the best wishes of the trade for their

REVIEW OF THE HARDWARE MARKET FOR THE LAST HALF OF 1886.

July .- After the decidedly depressing effect of the labor agitations and the consequent disappointment in the past season's trade, the market during July was quiet with some irregularity in prices. In some leading goods there was a tendency toward slightly lower quotations, but in other lines there were indications of a firmer tone, and during the month a few more or less important advances were made. A more hopeful tone, however, prevailed, and expectations were more freely expressed that the trade of the coming season would be an improvement upon that of the past. Manufacturers manifested a reluctance to accumulate stocks, feeling as they did some uncertainty in regard to the course of the market, and wisely concluding that an overplus of goods might interfere with what otherwise would be a satisfactory business. Early in the month Carriage Bolts were held more firmly, some of the manufacturers withdrawing the extreme quotations which had been made, and at this time began a more or less steady movement toward the better prices for these goods which has characterized the closing months of the year. The manufacturers of Chisels and Drawing Knives were also in conference with reference to measures looking toward an advance in prices, and action was taken which gave this line more uniform quotations than it had for some time previous. Augers and Bits were also slightly advanced. New discounts representing an advance of about 10 per cent. were also adopted by the manufacturers of Cast Iron Shelf Hardware, who during the month issued discount sheets of the revised prices. During the month Screws, Files, Iron Rivets, Tacks and Tackle Blocks, were more or less weak and irregular, low prices ruling. July 8 the associated Wire Nail manufacturers adopted a list of Standard Wire Nails, and a card rate for the same, the base price being made \$3.75 per keg of 100 pounds. For the regular Wire Nails the discount was fixed at 50 and 10 per cent. Later in the month advanced prices were adopted for Sheet and Bolt Copper, and during the month there were repeated advances in the Cordage list

eations which pointed toward a satisfactory, Table of Areas of Rectangular Planes in if not an unusually large fall trade. These of the market was accordingly not overconfident. While the advances made during turers with any general concessions in price. were quoted at lower prices may be men-Sash Weights were advanced, and Machine Bolts held at slightly better figures. The manufacturers of Sledges and Heavy Hammers have been in conference and have list of Solid Cast Steel Nail Hammers, and shipment of goods.

They also issue extra pages giving revised ties, but they hope in future to give prompt houses had purchased their goods, was indicated by the fact, that toward the end of small and assorted orders.

The Alaska Refrigerator Company, Michi- this month, second orders were being regan City, Ind., issue an exceptionally attract- ceived from them. The month closed with ive illustrated price list and catalogue, a moderate but fair activity, and hopeful

September.-Substantially the same condition of things continued through this month, which was characterized by a steady trade, which was conducted both on the dimensions: Construction and finishing part of manufacturers and jobbers on small margins. Prices gave continued indications of increased firmness, which was indicated not so much by definite and formal announcements of advances as in the slightly increased prices that were demanded of the largest buyers, the withdrawal of extreme quotations and the refusal to continue the giving of irregular extras. The most noticeable advances were in lines of Heavy Hardware which lie near the raw material, which were feeling the increased cost of Iron. Spikes, Nuts and Washers, Heavy Hinges, Wedges, Crow Bars, Bolts, both Carriage and Machine, and similar goods were thus affected, while Wrought-Iron Pipe, owing to the large demand, was definitively advanced, and Table Cutlery also formed a co-partnership under the firm held at slightly better prices. The improvement in this last line was owing in part to the increased cost of labor and material, which was affecting the production of many goods, and also to a better understanding among the manufacturers and a somewhat diminished competition. While the market had these elements of strength, it was characterized by a weakness in Nails, Plain Wire, Barb Wire and the irregularity, and in some cases lower prices, of other leading goods. Tubular Lanterns, owing to the expiration of patents and new competition, complicated, however, by some legal questions, were unsettled in price, with some uncertainty in the trade as to what would be their future status. Wire Nails, owing to the animated competition of the many manufacturers, were slightly irregular, and the manufacturers' prices in many instances were not adhered to. Action was taken by the manufacturers with a view to greater uniformity, and the card rate was fixed at \$3.50. These goods were in increased demand, and a large business was done in them. Blacksmiths Stocks and Dies had a downward tendency. Tacks continued low. Locks developed increased irregularity, extra discounts being given more freely. Rules were slightly lower. A new list and revised discounts were adopted for Rivets, making the nominal prices more nearly represent the actual The protracted weakness and irregularity in the Screw market developed lower quotations, and discount 80 per cent. on Flat Head Iron Screws was announced by the leading companies. The Snath and Cradle Association met, and it was decided to continue the organization in a modified form, leaving the manufacturers unrestricted in the matter of

October .- Notwithstanding the weakness in certain lines, the advances which had recently occurred, together with the continued strength in iron, had the effect of giving the market a generally firm tone, and during the month advances in several lines, mostly of Heavy Hardware, took place. In other goods of this class in which advanced quotations were not announced, there was a perceptible strengthening, as orders come upward at the extreme prices lately current. The demand continued active, in somewhat moderate proportions, the trade generally manifesting a conservative disposition and refusing to purchase in advance of their early requirements. While, as mentioned above, the prices during the month were firm, there were comparatively few changes, and the lines of goods on which reduced quotations were made were exceedingly few, and for the most part comparatively unimportant.

November.-This month was characterized by a fair, but not heavy, demand. orders being limited in most cases to near requirements, although it was recognized by some of the buyers that it was the part August .- The month was not charac- of wisdom to secure Heavy Hardware at terized by an especially active demand, nor the prices then prevailing, and there was by many changes in price, but a more hope- accordingly a considerable business done in ful feeling prevailed, and there were indi- these lines. The changes in quotation which occurred during the month were not very many, and may be described as manifesting expectations were, however, tempered by a continued tendency toward better prices, the recollection of the disappointment in especially in the line of Heavy Hardware, regard to the spring business, and the tone and a slight stiffening in the prices of Hardware generally. While some disappointment was expressed at the amount of the the month were not many, nor in important past season's business, it was generally conlines, there was throughout the market a ceded that it had reached reasonable expecdecidedly more firm feeling, and goods were tations, and the situation was recognized as not pressed upon the market by manufac- fairly satisfactory in itself, with an encouraging outlook. It is to be noticed that there were exceedingly few reductions in price well maintained. Among the few lines that of goods, and that the number of goods which were weak and irregular was much Wire, Coil, Chain and Padlocks, diminished. A conference of the manufacturers of Plain Wire and their subsequent action, resulted in giving a better Wrought Iron Butta were slightly advanced tone to prices, which had been low and and held with firmness, and Strap and irregular, and a gradual improvement is T Hinges remained steadily at the estab- consequently to be noticed. Advances more lished prices. The leading manufacturers or less important were made in Carriage of Screws, whose competition, the trade Bolts, Machine Bolts, Axles, Wrought Iron will remember, had for sometime been Pipe, Nuts and Washers, and the continued exceedingly animated, were showing a dis- strength of Sisal Hemp resulted in advanced position to confer with one another, but quotations. The month closed with a without any immediate result. The stocks naturally somewhat diminished volume of of Hardware in the hands of dealers and business, but with considerable activity, as device, and will doubtless be found of ser- been able to fill their orders as promptly as manufacturers were light, and the modera- large buyers were placing some orders for they desired, from lack of sufficient facili- tion with which some of the leading jobbing future delivery and the retail trade were

40&1

characterized by a firmness such as it had in it are given class numbers in consecutive not experienced for a long time. It is order, the numbers being those with which noticeable that there was during the course | the trade are familiar. These numbers beof the month scarcely a decline in the price gin with Bronzed Butts, Bolts, &c., which of any leading goods, and the number run from No. 200 to No. 500, and end with of lines which were notably irregular Tacks, Brads and Nails, which run from was very much diminished. A great No. 5000 to No. 6000. The tables which are many goods in which labor is an important given in regard to the contents of original part of the expense showed little, if any, packages and other information embodied in change, there being very few advances in the catalogue will be appreciated. the price of such Hardware, but with unchanged quotations, the tone of the market for these, in sympathy with the feeling in heavy goods, was slightly firmer. The most number of advances which took place, especially in Heavy Hardware. During the month advances were made in Nuts and Washers, of which new list prices were adopted by the associated manufacturers, Carriage Bolts, Screws, which were put at the circular price of 75 per cent. discount, Coil Chain, Wire, Machine Bolts, Cast Butts, Wrought Iron Pipe, Thimble Skeins, Axles, Gimlet-Pointed Coach Screws, and Lag Screws, while firmer prices ruled for Wire Nails, Copper Rivets and Burrs, Tacks and other goods. In this condition of things, and the prevalence of a hopeful feeling in regard to future trade, there was a disposition on the part of many of the larger buyers to place orders for their next season's requirements for such goods as they regarded as low and likely in the near future to advance. The result was that a great many goods were sold during the month, which undoubtedly aggregated more than any of the preceding months. It will be understood that this active demand was especially for goods which were giving indications of increased firmness. The trade showed a disposition to refrain from ordering in anticipation of their wants the general line of shelf goods, which remained in about their former condition, and while there was a recognition of the improved tone of the market there was little disposition to speculate on an increased price for Hardware generally. In view of the advances which had taken place, and the satisfactory business which was being done, the month closed with an exceptionally hopeful feeling and the anticipation of a satisfactory opening of

THE STANLEY WORKS.

New Britain, Conn., and 79 Chambers street, New York, are issuing to the trade a new catalogue which is exceedingly creditable to them, and will be of much service to their customers. It represents a line of Wrought Butts, Hinges, Bolts, &c., in different styles and finish, far greater than is furnished, we believe, by any other manufacturer. The extent of the line is indicated by the fact that the company are manufacturing 2000 styles and sizes of Wrought Butts, and over 800 styles and sizes of Wrought Door Bolts. In addition to the general line of these goods, which were represented in their former catalogue, and with which the trade are familiar, the present volume contains lists with illustrations of the line of Hinges and Fastenings for outside Window Blinds, Window Springs, &c., to which 25 pages are devoted, and also a list of Tacks, Brads and Nails, a line to which the company are giving much attention, and which is represented exceptionally fully and satisfactorily.

This part of the list opens with an illustration of their improved style of package for Tacks, to the advantages of which they allude. Then follows a Tack list in which the full line of Tacks which they are making is represented in such a way as to serve the convenience of the trade, with an explanation and illustration of the manner in which the goods are labeled, a feature to which the company call special attention. By their system of labeling packages there is a distinct and separate color, for each class of goods, the size is printed in large figures, and the follows are the convenience of the size is printed in large figures, and the follows are the convenience of the size is printed in large figures, and the follows are the convenience of the size is printed in large figures, and the follows are the convenience of the size is printed in large figures, and the follows are the follows are the convenience of the trade, with an explanation and illustration of the manner in which the goods are labeled, a feature to which the company call special attention. By their system of labeling packages there is a distinct and separate color, for each class of goods, the size is printed in large figures, and the follows are the fol and Natls, a line to which the company are and the labels also differ so as to indicate at a glance whether the goods are packed full, half, or quarter weight. As illustrating this feature they print in colors fac-similes of some 40 labels belonging to the leading goods. The convenience of this method will be appreciated, as without a close examination of the label the merchant can ascertain what kind of goods and what sizes and weights he has in stock. Another feature of this section of their catalogue is the fact that cuts are given representing the different kinds of Tacks and Nails of the different sizes Thus cuts are given not only made. of the leading goods, but also of kinds not subsequently called for, such as Swedes Iron Brush, Miners' and Bill Tacks, Picture Frame Points, Basket Nails, Hob Nails, oval, curved and square head, and other goods, with which many of the trade even are not familiar. The list also contains what is, we believe, an entirely new compilation for the merchant's convenience-comparative lists of Strap and T Hinges, Door Butts and Wrought Butts. In these the list prices for the various sizes of the different kinds of goods are given

December .- The market generally was It may be added that all the goods contained

The following discount sheet has also been issued referring to the catalogue. It will be observed that it embodies some changes in quotations. The terms are net cash, 30 noticeable feature of the month was the days, or 2 per cent. for cash if paid within 10 days of date of invoice :

Dis. per cent.

Bronzed Capped Butts, Nos. 200, 201, 2014, 202.

Bronzed Loose Joint Butts, Nos. 206, 207, 2074, .35

Bronzed Loose Joint Butts, Nos. 208, 209, 210, 211.

25&10 Bronzed Loose Joint Butts, Nos. 212, 213, 214,

Bronzed Light Narrow Loose Pin Butts, No. Bronzed Light Reversible Butts, No. 388.
Bronzed Extra Light Butts, No. 390
Bronzed Broad Butts, No. 391.
Bronzed Light Loose Joint Butts, No. 392.
Bronzed Light Loose Joint Butts, No. 392.
Bronzed Light Inside Blind Butts, Nos. 330
383, 384, 385, 388. 30&10 34&10 382, 34&10 40&10 30&10 333, 334, 335, 338.

Bronzed Shutter Butts, No. 344.

40&10

Bronzed Wash Tray Hinges, No. 347.

30&710

Bronzed Screws (R. & E. list), No. 352.

50

Bronzed Mortise Flush Bolts, Nos. 351, 3614, 30&70

Bronzed Flush Bolts, Nos. 362, 364, 366, 368, 370, 372, 374, 276, 378, 380, 382, 384, 386, 387, 390, 392, 393

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Nickel Plated Flush Bolts.

Nickel Plated Flush Bolts.

Nickel Plated Flush Bolts.

No. 600, 601.

Boston Finish Loose Joint Butts, Nos. 602, 603, 25&10

Boston Finish Loose Joint Butts, No. 604, 40&10

Boston Finish Loose Joint Butts, No. 604, 40&10

Boston Finish Loose Joint Butts, No. 604, 40&10

Boston Finish Loose Joint Butts, No. 606, 609, 40

Boston Finish Loose Joint Butts, No. 606, 40&10

Boston Finish Light Inside Blind Butts, No. 608, 40&10

Olive Bronzed Light Reversible Butts, No. 604, 40&10

Steel Carpet Tacks, Flat Head, Blued, No. 5083, 70

Steel Carpet Tacks, Flat Head, Tinned, No. 5084, No. 634, No. 634, 40&10

Olive Bronzed Light Narrow Butts, No. 636, 40&10

Olive Bronzed Light Narrow Butts, No. 636, 40&10

Olive Bronzed Light Narrow Butts, No. 636, 40&10

Olive Bronzed Light Inside Blind Butts, No. 638, 40&10

Olive Bronzed Light Inside Blind Butts, No. 638, 40&10

Olive Bronzed Light Inside Blind Butts, No. 638, 40&10

Olive Bronzed Light Inside Blind Butts, No. 638, 40&10

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Olive Bronzed Light Inside Blind Butts, No. 638, 40&10

Olive Bronzed Light Inside Blind Butts, No. 638, 40&10

Olive Bronzed Light Inside Blind Butts, No. 638, 40&10

Olive Bronzed Light Inside

| Japanned Light Loose Joint Butts, No. 750. 35&10 |
| Japanned Light Narrow Sutts, No. 752. 30&10 |
| Japanned Light Narrow Sutts, No. 758. 90&10 |
| Japanned Screws, No. 756. 70 |
| Narrow Butts, No. 800. 65 |
| Narrow Loose Joint Butts, No. 892. 65 |
| Narrow Loose Joint Butts, No. 894. 65 |
| Loose Joint Butts, No. 896. 66 |
| Loose Joint Butts, No. 896. 66 |
| Broad Butts, No. 896. 65 |
| Table Butts, No. 896. 65 |
| Table Butts, No. 896. 65 |
| Table Butts, No. 897. 65 |
| Back Flaps, Nos. 814-816. 65 |
| Pew Door Butts, No. 818 65 |
| Chest Hinges, No. 820. 65 |
| Reversible Butts, No. 822. 60 |
| Extra Light Butts, No. 824. 65 |
| Light Loose Joint Butts, No. 836 65 |
| Light Loose Joint Butts, No. 838 65 |
| Light Loose Joint Butts, No. 838 65 |
| Light Narrow Butts, No. 838 65 |
| Light Inside Blind, Loose Pin, No. 840. 65 |
| Light Inside Blind, Loose Pin, No. 841. 65 |
| Light Inside Blind, Loose Pin, No. 844. 65 |
| Light Inside Blind, Loose Pin, No. 844. 65 |
| Light Inside Blind, Loose Pin, No. 844. 65 |
| Light Inside Blind, Loose Pin, No. 844. 65 |
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| Light Inside Blind, Loose Pin, No. 848. 65 |
| Light Inside Blind, Loose Pin, No. 848. 65 |
| Light Reversible Butts, No. 848. 65 |
| Light Reversible Butts, No. 8

Light inside Sauted List, or paper List. trap and T Hinges, Nos. 900, 902, 904, 906, 906, 65&5

Projecting Flush Bolts, No. 1038 Southern Door Bolts, No. 1046.... Fourthern Door Bolts, No. 1046. 30&10
Southern Door Bolts, No. 1046. 40
Flat Tail Bolts, No. 1048 40
Flat Tail Bolts, No. 1050, 1052, 1054. 50&10
Canada Bolts. Nos. 1058, 1060, 1062, 1064, 1066, 1068, 1070, 1072, 1074, 1076
Barrel Bolts, Nos. 1078, 1080, 1081, 1082, 1084, 1086, 108 | 108, 1070, 1072, 1074, 1076 | 50 | 1081, 1082, 1084, 1086, 1081, 1082, 1084, 1086, 1081, 1082, 1084, 1086, 1081, 1082, 1084, 1086, 1081, 1082, 1084, 1086, 1088, 1089, 1092, 1094, 1095, 1089, 1089, 1092, 1094, 1095, 1098, 1098, 1099, 1094, 1096, 1098, 1098, 1098, 1099, 1094, 1096, 1098, 1098, 1099, 1099, 1094, 1096, 1098, 1099,

quantities equal to Solo sets each, 7½%; 2000 sets each, 1646, 164

70 Swedes
65 Swedes
65 Swedes
66 Basket
66 Basket
65 Basket
7 Trunk
65 Trunk
65 Copper Basket Nails, Oval He ad. No. 5295 Basket Nails, Oval Head, Tinned, No. 5300. 4-8 and longer, 56¢ ₩ B 50

Clout Nails, No. 5815.... Clout Nails, Tinned, No. 5320 Copper Nails, No. 5823.... 4-8 and longer, 56¢ @ B 86 60 Swedes Iron Hungarian Nails, Small Oval Head, wedes fron Hungarian Nails, Large Oval Head, No. 5885

316-8 and shorter, 4-8 and longer, 5¢ & D

PECK, STOW & WILCOX COMPANY, Southington, Conn., and New York, issue, under date of January 1, 1887, the following discount sheet, which gives, it will be observed, a number of revised prices. Special Goods (Class A), are marked A, and are subject only to a cash discount of 2 per cent. beyond the prices named, and goods not in Class A are subject to an additional cash discount of 10 per cent. beyond the prices given below :

Tinners' Tools and Machines. Stow's Pat. Encased Machines Raymond's Patent Machines. No. 1 Machines. Power Machines Moore's Double Seamers Stow's Double Seamers Olmsted's Double Seamers. Burton's Double Seamers. Hulbert's Double Seamers. Hulbert's Double Seamers. Crimning Machines. Crimning Machines. Crimping Machines Stove Pipe Formers, Nos. 1, 2 Fin Pipe Formers, Nos. 1, 2 Nos. 0, 5, 0000, 000, 00 Formers
Stow's Improved Formers
Sq. Box and Can-top Folders.
Forming Machines.
Forming Machines.
Sheet fron Folding Machines.
Patent and Improved Gutter Machines.
Gutter Machines and Gutter Rods.
Squaring Shears.
Circular Shears.
Samson Punch
Wangh's Greenlar Shears Farmer's Rivet Sets, same list..... Hand Groovers Finners' Awis and Cutting Nipper.. Finners' Mallets

Stove Cover-Lifters Stove Pokers.... Coal Shovels
Shovel, Tongs and Pokers
Shovel and Tongs Stands
Fire Sets
Fire and Kitchen Sets.... Brass Andirons and Fenders.
Umbrella Stands...
Match Plates and Safes.
Towel Rollers
Book Racks.
Stove Bolts... 50&10

| Tower | Towe Hatchets and Boys' Axes
Butchers' Cleavers
Corn Heoks...
Cast Hatchets
Steak Hammers.
Nail Hammers.
Tack Hammers
Tack Hammers
Nantucket Drivers.
Carpet Stretchers and Tack Claws.
Shoe Hammers.
Peck's Patent Braces.
Bit Braces.
Bit Braces.
Carpet Stretchers and Tack Claws.
Show Hammers.
Peck's Patent Braces.
Bit Braces.
Box Saw Rods, tinned, add 25 per cent.
Saw Rods.
Saw Rods.
Saw Bots.
Cheese and Butter Triers.
Screw-drivers.
Box Scrapers and Chisels.
Cold Chisels...
Box and Cotton Hooks.
Vises...
Geared Breast Drills.

.3316

331/6

No goods.881/6

.50&10

Geared Breast Drills...
No. 4 Nickel-plated Drill.
Ratchet and Blacksmith Drills.
Blacksmiths 'Shoeing Pincers...
Blacksmiths 'Butterises...
No. 12, Farriers' Hammers.
Steel Trans... No. 12. Farriers' Hammers. Steel Traps. Wagon Jacks and Jack Screws. Bench Screws. Wagon Jacks and Jack
Bench Screws.
Door Clamps.
Quilt Frame and Cabinet Clamps.
Carriage-makers' Clamps.
Ice Picks and Ice Axe and Picks
Scratch Awls.
Steelyards.
Scale Beams

Scale Beams
Spring Balances
Tea and Counter Scales
Dixon's Meat Cutters.
Hale's Meat Cutters
Meat Cutters
Sausage Fillers
Cherry Seeders
Apple Parers.
Tobacco Cutters
Door Bells—change list:

Add No. 07 Bell Lever, per doz., \$8.10.00
Change list, No. 0660 to \$1.65.
Door Bells and Levers
Trip Gong Bells
Alarm Door Bells
House Bells on Carriages
Slide Bell Pulls
Bell Cranks.

Bell Cranks.

Bell Cranks.

Kensington Bronzed Bolts Kensington Bronzed Bolts Kensington Bronzed Bolts Flush Bolts Cast Brass Pi Cast Brass Flush Bolts

Mortise Front Door Bolts

Chain Door Fasteners

Chain Door Bolts Chain Door Bolts
Bottem Bolts
String Foot Bolts
Square Spring Foot Bolts
Square Spring and Square Cased Bolts
Nos. 415 and 417, Wrought Spring Bolts
No. 508, Cast Spring Bolts
Wrought Iron Square Bolts
Cast Brass Square Spring Bolts
Cast Brass Square Neck Bolts
No. 425, Wrought Square Necked Bolts
No. 504, Cast Square Necked Bolts
No. 505, 506, Cast Barrel Bolts
Wrought Barrel Bolts
Cast Brass Barrel Bolts
Lron Knob Tower Bolts
Iron Knob Tower Bolts
No. 502, Flat Shutter Bolts
No. 505, Lever Bolts
Straight Cupboard Bolts
Flat Cupboard Bolts
Flat Cupboard Bolts
Flat Cupboard Bolts
Flat Ship Bolts
Brass Showcase Catches
Flush Cupboard Catches
Cupboard Latches
Cupboard Catches
Cupboard Catches Cupboard Latches Cupboard Catches French Window Catches Cupboard Turns Screen Door Catches Sash Locks and Window Casters.
Sash Lafts.
Sash Lafts.
Shutter Lafts
Sash Lafts and Locks.
Shutter Knobs.

Stubs and Plates.... Shutter Screws Window Spring Bolts, change list Window Spring Bolts and Sockets.... Window Springs Add Window Springs to Screw— Son 22 from Bolt Per gross 5
Sash Cord Irons, Centers and Props
Trunk and Sash Rollers
Axie and Frame Pulleys.
Add No. 14.—145 inch list. Per doz., \$2.80.

Per doz. \$1.40
Clothes-Line Pulleys...
Hot-House and Awning Pulleys.
Nos. 740, 1740, 760, 1760 Awning Pulleys
Sliding Shutter Sheaves
Encased Swivel Pulleys.
Well Wheels and Hooks.
Drawer Pulls Well Wheels and Hooks.
Drawer Pulls
Card Frames
Cast Brass Flush Rings.
Pendant Drawer Pulls.
Drawer and Lifting Handles.
Cast Brass Lifting Handles.
Japanned Lifting Handles.
Japanned Lifting Handles.
Trap Boor Rings
Door Knobs.
E-cutcheons
Letter-Box Plates.
Store Door Handles
Store Door Handles
Add Barn Door Catch. 40&10 50&10 40&10 50&10 Add Barn Do Thumb Latches. 20,55
Door Pulls
Door Pulls
Add Screen Door Pull No. 7. Per doz., 36 cents.
Hat and Coat Hooks. 40
Add Hat and Coat Hooks with Wrought Screw
No. 33 Japanned, per gross, \$3.60.
No. 133 Coppered, per gross, \$3.60.
Wardrobe Hooks. 40
Clothes-Line Hooks. 40
Harness Hooks. 40
Chandelier and Ceiling Hooks. 40
Chandelier and Ceiling Hooks. 40 Harness Hooks
Chandelier and Ceiling Hooks.
Lamp and Cabin Door Hooks
Drive and Screw Hooks
Molding and Mirror Hooks
Cup Hooks.
Lampock Hooks.

40&10 40&10

Hammock Hooks.
Bird Cage Hooks.
Casters—See new list, old list discarded.
Sed Keys.
Sedstead Fastenings
Dx Bow Pins.
Lattle Leaders and Bull Rings
Dx Balls.
Canthe Leaders Plumb Bobs... Hitching Rings tog Scrapers. Truning Shears. Sut Crackers Jarden Forks and Trowels Joot Jacks oot Scrapers... Litchen Grindstones Grindstone Fixtures. Strap and T Hinges. Hinge Hasps Hook ard Plate Hinges Wrought Butts and Hinges A A 70&10 70&10 70.01 Loose Pin Butts, Nos. 50 and 60.
Blind Hinges
Hinges and Gate Latches.
Barn Door Hangers
Barn Door Stays
Barn Door Stays
Barn Door Rollers
Sliding Door Sheaves.
Barn and Sliding Door Rail
Pitcher Pumps
Steet Hammers
Riveting Machinists' and Blacksmiths'
mers
Saddlers' Punches
Saddlers' Punches se Pin Butts, Nos. 50 and 60....

mers
Saddlers' Punches
Tack and Nail Puller
Agricultural Screw Driver
Flower Fot and Lamp Bracket
Shelf Brackets.
Flower Basket
Twine Boxes
Erasers 40&5 40&5 40&5 40&5 40&5 408: Common Carriage and Saddiery Hard Common Carriage Bolts. A Phila Pat. Carriage and Tire Bolts. A Eagle Carriage and Tire Bolts. A Machine Bolts A Bott Ends. A Coach Saraus Carriage and Saddiery Hardware Sleigh Shoe Bolts
Felioe Piates
Felioe Piates
Fron Washers, new list
Square Nuts, old list
Hexagon Nuts, discarded
Tubular Lantern Holder
Carriage Bands
Carriage Bands
Carriage Knobs
Shaft, Hame and Whiffletree Tips
Neck Yoke Tips and Pole Tips
Club H ndles.
Whip Sockets
Inside Coach Handles
Spring Bar Bolts
Harness and Breeching Dees.
Cockeyes and Pat Trees.
Terrets, Hooks and Swivels
Axle and Spring Bar Clips
Curry Combs.

Curry Combi The works of the Bellsire Nati Works, Bellaire, Ohio, were storted on the 10th inst. The product is to be Steel Nails ex clusively.

Current Hardware Prices, January 12, 1887.

HARDWARE.	1
Ammunition. Aps. Fercussion, \$ 1000— Hicks & Goldmark's F. L. Waterprof. 1.10's	
Hicks & Goldmark's F. L. Waterproof, 1-10's	iis 25 ≰
Musket Waterproof, 1-10's. G. D. S. B. Union Metallic Cartridge Co.	. 54¢ 28¢
Union Metallic Cartridge Co. F. C. Trimmed	1
Union Metallic Cartriage Co. F. C. Trimmed	is 25 ≸
8. Genuine Imported. Eley's E. B.	45¢
Eley's D Waterproof, Central Fire	.\$1.60 E
Rim Fire Military Cartridges	5&2 % V 0&2 % 0&2 %
C rfridges— Rim Fire Cartridges	addi-
Blank Cartridges, 32 cal. \$3, d Primed Shells and Bullets dis 2.	18 2 % C
B. B. Caps, Conical Ball, Swaged	18 2 % O
Berdan Primers, all sizes, and B. L. Caps Sturtevant Shells	is 2 %
*hells— Paper Shot Shells, 1st & 2d or S. G. qual.dis 25&5 Sefbold's Combination Shot Shellsdis 25&10	82 % V
Paper Shot Shells, Club, Rival, Climax.dis 40&2 Paper Shot Shells, Star Brand	&2 s M
#ads— U. M. C. & W. R. A.—B. E., 11 up\$2.00 }	Ba
U. M. C. & W. R. A.—B. E., 7&8 2.60 U. M. C. & W. R. A.—P. E., 11 up 3.10	&2 % Te
C. M. C. & W. R. A.—P. E., 9810 4,00 U. M. C. & W. R. A.—P. E., 788 490 Eley's B. E., 11 up	1.75 De
Eley's P. E. 11 @ 20. A n with — E sgle Anvils \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	82.80 85 % 9366
Armitage's Mouse Hole	1166
Wilkinson's	1560
stillers Falls Co	20 % % 25 % %
Hayden & BarnesNo. 2 per gross, \$30; No. 3, Apple Parers.—Advance	\$90 Ca 4.50 Ca 8.00 C
Family Bay State. # doz \$1: Gem. # doz \$ Gold Madel # doz \$ doz \$	2.00 P 5.00 R
Ideal Bay State # doz \$ 1 mproved Bay State with Push Off # doz \$ 3	1.50 5.00 Tir 0.00 C
Jersey # doz & Little Star # doz &	5.00 P 5.00 P
Monarch, Peach and Apple F doz \$13 New Lightning Goz \$1	,50 A ,00 A
Penn. \$ doz \$4 Perfection. \$ doz \$4	.50 R .50 Sto
Rotary # dox \$15 Standard # doz \$1 Turntable # doz \$5	.50 St 00 Pi 50 Ai
Waverly 9 doz \$1 White Mountain 9 doz \$5 72 9 doz \$4	00 R. 25 R. 50 R.
Brass Shot Shells, 1st quality dis 66 Brass Shot Shells, Club, Rival & Climax dis 65 #dab= U. M. C. & W. R. A.—B. E., 11 up \$2.00 U. M. C. & W. R. A.—B. E., \$2.10 \$2.30 C. M. C. & W. R. A.—B. E., \$2.20 \$2.30 C. M. C. & W. R. A.—B. E., \$2.20 \$2.30 C. M. C. & W. R. A.—B. E., \$2.20 \$2.30 C. M. C. & W. R. A.—P. E., \$2.20 C. M. Wilkinson's. C. M.	50 Mac Bolt
New Haven Cooper @c	1 15
French, Swift & Co. (F. H. Beecher)	Jen
ook's, Douglass Mfg. Co	Be Bun
Fatent Solid Head. E. Jennings & Co., No. 10, extension lip. dis 30. E. Jennings & Co., No. 30. E. Jennings & Co. Auger Bits, in fancy boxes, set, set, set, set, set, set, set, s	g Hum
C. E. Jennings & Co., Auger Bits, in fancy boxes, \$\psi\$ set, \$2\forall quarters, \$\text{No. 5, \$5}\$; \$\text{No. 3C, \$3}\$	Pech Bi Back Back
tussell Jennings' Augers and Effs. dis 25 initation Jennings' Bits (new list). dis 50&10&5@60 'ar Bits, Snell Mfg. Co	% Back
Lewis' Patent Single Twist. dis 44 tussell Jennings' Ausers and Bits. dis 25 mitation Jennings' Bits.new list). dis 50&10&5@66 ar Bits, Snell Mfs. Co. dis 40&10&10. The Bits, New Haven Copper Co. dis 60&10&10. "Hommedieu Car Bits. dis 50&0 Misel Mfs. Co. s Jennings' Bits (new list). dis 50&5 Forstner Pat. Auger Bits. dis 10 dis 1	S Barb
Korstner Pat. Auger Bits dis 10 foliou Augers 1 Ives (dis 25&10 French, Swift & Co (25&10 Dourlass' (25&10 **Expensive Bit* (Clark's small, \$18; large, \$86 dis 35 @ 35&5	Bark Osgo Spoff Ives'
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Sonney's Adjustable # dos. \$48. dis 40&10 Stearns' Adjustable # dos. \$48. dis 20&10	Amid
Expansive Bits— Clark's amall, \$18; large, \$26. dis 35 @ 35&5 Clark's amall, \$18; large, \$26. dis 35 @ 40; res' No. 4, per dos., \$90. dis 35 @ 40; see dis 45;	Amid Amid P. S.
Common # gross \$3.00 @ \$3.2	Bri
Diamond.	Readi Readi
Double Cut. Douglass'	Henis
Morse Twist Drills dis 50&10 9 Standard dis 50&10 9 Cleveland dis 50&10 9	Bu Bul
### Stock ************************************	Hotch Huma Peck. Ellric
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Awi Haits. \$3.50 % gross—dis 40&10 % wing, Brass Ferrule. \$3.50 % gross—dis 40&10 % dent Sewing, Short. \$1.00 % dos—dis 40&10 % atent Sewing, Long. \$1.20 % dos—net atent Peg. Flain Top. \$10.00 % gross—dis 40&10 % dent Peg. Leather Top. \$12.00 % gross—dis 45&10 % Awis. Except Meg. Top.	Cast Cast I Fast
atent Peg. Plain Top\$12.00 \$ gross—dis 45&10 \$ atent Peg. Leather Top\$12.00 \$ gross—dis 45&10 \$	Loos Loos
A wis, Brud Setts & C. wis, Sewing, Common	Loos Park May
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ay's Adj. Tool Hdis Nos. 1, \$12; 2, \$18.; 3, \$12; 4, \$9. dis 25@ 25&10 \$	Loos Table
ller's Falls Adj. Tool Hdis., Nos. 1, \$12; 2, \$18.dis 25 5 enry's Combination Haft	Insid Insid Loose
Iler's Falls Adj. Tool Hdis., Nos. 1, \$127, \$218.46 is 25 \$ rnr's Combination Haft. \$\frac{1}{2}\$ \$0 \$\text{dos.}\$ \$0 \$ rnr's Combination Haft. \$\frac{1}{2}\$ \$0 \$\text{dos.}\$ \$0 \$ star's Combination Haft. \$\frac{1}{2}\$ \$0 \$\text{dos.}\$ \$0 \$ ad Sets. No. 47, \$10.50, No. 43, \$12.50. \$\text{dis.}\$ \$70\$\$ dos \$\text{dos.}\$ \$1, \$7.50, \$1, \$7.50, \$1, \$1, \$1, \$1, \$1, \$1, \$1, \$1, \$1, \$1	Bron Blind I
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Cote— Common Wrought	@50&5 \$
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Broilers. Inch	Fitte
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Parker dia 75&2 Paimer dia 50&2 Seymour dia 50&2 Seymour dis 70&2 Luil & Forter dis 80 Nicholson dis 68 Nicholson dis 50 Huffer dis 50 Clark's, Nos. 1, 3, 5, 11, 13. dis 75&10 Sargent's, Nos. 1, 3, 5, 11, 13. dis 75&10 Reading's Gravity Nos. 1, 3, and 5, dis 80 Shepard's Stramboat Gravity, Nos. 1, 3 and 5, dis 80 Shepard's Stramboat Gravity, No. 1, 6, and 5, dis 80 Shepard's Stramboat Gravity, No. 10, dis 80&210 Shepard's Stramboat Gravity, No. 10, dis 80&10 Shepard's Stramboat Gravity, No. 1, 6, 16, 6 Cark's Inproved Shutter Hinge, Nos. 0, 1, 18, 2 Cark's Improved Shutter Hinge, Nos. 0, 1, 18, 2 2, 2 3, 3 North's Automatic Blind Fixtures, No. 2, for Wood, \$10,50; No. 3, for Brics, \$13,50. dis 25&2 Burcher's Cleavers Cleavers	s Shaws Ellica Witt New Watt S New S New S New S New S New Rate Rate Rate Rate Rate Rate
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Gurrent maru	ware Prices,	January
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Cast fron Chain (Sargent's list)	6 s derman Coll, list of June, 1881	609 Knox, 44-inch Rolls 605 Knox, 6-inch Rolls 625 Eagle, 34-inch Rolls 625 Carlon Folls 626 American, 5-inch Roll 626 American, 5-inc, 83, 60: 7 636 Cown Jewel. 636 American, 5-inc, 83, 60: 7 636 Cown Hand Fluter, No. 110. 636 American, 5-inc, 83, 60: 7 636 Cown Hand Fluter, No. 110. 636 Cown Hand Fluter, No. 110. 636 Cown Hand Fluter, No. 110. 637 Cown Hand Fluter, No. 110. 638 Cown Hand Fluter, No. 110. 638 Cown Hand Fluter, No. 110. 639 Cown Hand Fluter, No. 110. 640 Cown Hand Fluter, No. 110. 650 Cown Hand Fluter, No. 110. 651 Cown Hand Fluter, No. 110. 652 Cown Hand Fluter, No. 110. 653 Cown Hand Fluter, No. 110. 654 Cown Hand Fluter, No. 110. 655 Cown Hand Fluter, No. 110. 656 Cown Hand Fluter, No. 110. 657 Cown Hand Fluter, No. 110. 658 Cown Hand Fluter, No. 110. 659 Cown Hand Fluter, No. 110. 659 Cown Hand Fluter, No. 110. 659 Cown Hand Fluter, No. 110. 650 Cown Hand Fluter, No. 650 Cown Hand
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nis Seif-Basting Per dos	Humason & Beckley Mfg. Co. dis 40 @ 40&10.	Wilkinson's Smiths. Wilkinson's Smiths. Heavy Hammers and Sledges, und Heavy Hammers and Sledges, ove Providence Tool Co., Hand Cuffs, 8 Providence Tool Co., Leg Irons, 826 Tower's. Daley's Improved Hand Cuffs: 2: 7 ### dos, \$48. Nickeled, \$57; 3 Hai dos, \$72; Nickeled, \$57; 3 Hai dos, \$72; Nickeled, \$54. Handles. ### Door or Thumb. Nos
ayer's Hinges Jose Pin, Acorns, Japanned Jose Pin, Leon William Jose Pin, Light Jose Joint, Broad Jose Joint, Jose Jose Jose Jose Joint, Jose Jose Joint, Jose Jose	Dividers	Apple Firmer Chisel, large. Socket Firmer Chisel, large. Socket Framing Chisel, assorted. J. B. Smith Co.'s Pat. File. File, assorted. File, a
epard's "Notscieas," Nos. 30, 09, 08 20 5. 0187025 epard's Niagara Gravity, Nos. 1, 8 25. dis 80 25 epard's Buffalo Gravity, Nos. 1, 8 25. dis 80 225 epard's Eughalo Gravity, Nos. 1, 8 25. dis 80 225 epard's Campion Gravity, No. 10. dis 80 210 epard's Steamboat Gravity, No. 10. dis 80 210 epard's Steamboat Gravity, No. 10. dis 80 210 epard's "Queen City" Reversible dis 75 5 12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Bradle's.	Chairteau wood track. Champion Rider and Wooster, Medina Mfg. Cc Climax Anti-Friction Climax Steel Anti-Friction. Zenith for Wood Track. Reed's Steel Arm. Challenge Steritug Improved (Anti-Friction Victor, No. 1, 815; No. 8, 816,50; No. Cheritree. Eidder's. He Soss Best Anti-Friction. Duples: Wood Track. Ferry's Fatent. Ferry's Fatent. Victor, No. 4, 818; No. 5, 82 Cronk's Patent. Victor, No. 4, 818; No. 5, 84 Cronk's Patent. Victor, No. 6, 818; No. 5, 818 Cronk's Patent. Victor, No. 6, 818; No. 5, 818 Cronk's Patent. Victor, No. 6, 818; No. 6, 818 Cronk's Patent. Victor, No. 6, 818; No. 6, 818 Cronk's Patent. V
enger's Counet. \$\Psi\$ dos \$83.00, dis 25 \(\frac{1}{2} \) forcing \$\psi\$ dos \$25, dis \$1.0 \) \$\psi\$ 20 \(\frac{1}{2} \) \$\psi\$ 4 dos \$25, dis \$1.0 \) \$\psi\$ 20 \(\frac{1}{2} \) \$\psi\$ 4 dos \$25, dis \$1.0 \) \$\psi\$ 6 dos \$2.5, dis \$2.0 \) \$\psi\$ 10 \(\frac{1}{2} \) \$\psi\$ 4 dos \$2.20, dis \$5 \(\frac{1}{2} \) \$\psi\$ 10 \(\frac{1}{2} \) \$\psi\$ 20, dis \$1.0 \(\frac{1}{2} \) \$\psi\$ 10 \(\frac{1}{2} \) \$\psi\$ 20, dis \$2.0 \(\frac{1}{2} \) \$\psi\$ 10 \(\frac{1}{2} \) \$\psi\$ 20, dis \$2.0 \(\frac{1}{2} \) \$\psi\$ 20 \(1	Drill Bits.	Fel's dis 2 Lane a Steel Anti-Friction dis 2 Lane a Steel Anti-Friction dis 2 Lane a Steel Anti-Friction dis 2 The Ball Bearing Door Hanger dis Warner's Patent. Steams' Anti-Friction Faultiess Anti-Friction Fulliess Anti-Friction Fulliess Anti-Friction Fulliess Anti-Friction Fulliess Anti-Friction Faultiess Anti-Friction Paragon. Nos. 1, 2 and 3 Paragon. Nos. 4, 5, 54 and 6 Crescent. Harness Shaps See Shaps. HatchetsList Jan. 1, 1886, Isalah Blood. Hunt's Shingling Lath and Claw Hunt's Broad

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Fifth Wheels.—Derby and Cincinnati dis 454	25 %
Best brands	10 \$ 70 \$ 10 \$ 5 \$
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Buffalo. \$\vec{\phi}\$ dos \$10,00 dis 16 Fluting Scissors. dis 44 Forks. Hav. Manure. &c., Asso. list. dis 60&10&10 Hav. Manure. &c., Phisa. list. dis 60 & 60&2 Plated, see Spoons.	4 4
Plated, see Spoons. Freezers. Ice-Cream. Leading Goors. Frait and Jelly Presses. Enterprise Mrs. Co	
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Halters.—Covert's Fat. 14 June of the 504:10429 overt's Hump Horse and Cattle Tie dis 504:1042 overt's Jute Horse and Cattle Ties dis 604:02 encely's Fat. Adjustable Hemp and Jute. dis 504:10 encely's Hemp and Jute Horse and Cattle Ties	
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8 4: &1(2 (Screw Hook and Eye	ios \$1.5 ios \$2.4 ios \$3.8	50
8 50 8 10 8 40 8 50	16	Rolled Blind Hinges, Nos. 32 and 34 Rolled Plate Rolled Raised	dis 5	0&1 5&1 0&1
\$ 40 \$10	×	Plate flinges (8, 10 & 12 in., * b "Providence" over 12 in., * b		4
64 &5	50	Spring Hinges— Geer's Spring and Blank Butts. Union Spring Hinge Co.'s list. March. 1 Acme. Crown. Empire and U. S. American, Gem. and Star, Japanned American, Gem. and Star, Bronsed Oxford. Bronze and Grass. Barker's Double Acting. Union Mfg. Co. Bommer's. Buckman's. Chicaco. Gate Hinges— Western. # dos N. E. # dos N. E. # dos N. E. # dos S. N. E. Reversible. # dos S. Clark's, Nos. 1 2 S. dis 60&10 N. Y. State. # dos S. Automatic. # dos S. Automatic. # dos S. Shepard's, Nos. 1, 2, 10 and 20 Shepard's, No. 3. Reed's Latch and dinges. # dos sets Hace. Hace.	886d	is 4 is 2 is 8
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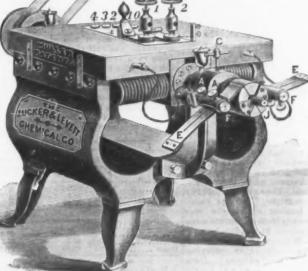
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Covert New Patent dis 50cc & Covert New R. E. dis 60c2 &	Reiher's Reiher's Excelsion
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Spoke Trimmers.	Game, Mouse an
Spoke Trimmers. # dox \$10.00, dis 50 g Bonney's # dox \$0.00, dis 20&10 g stearns # dox \$0.00, dis 20&10 g vec No. 1, \$15.00; No. 2, \$12.00 g dox, dis 50&10 g bouglass # dox \$0.00, dis 20 g	Mouse,
Spoons and Forks	Mouse, Mouse, Mouse,
	Rat, "D
Tinned Fron	Ideal Cyclone
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Holmes, Booth & Haydensdis 50&10&5 @ 60 % Holmes & Edwards Silver Codis 50&10 @ 60 %	Worrall's Garden
H. & E. Silver Co. Steel Silver-Plated Teas. \$15; Tables, \$30	Triera
German Silver, Hall & Elton	Truck Penfield Tubes
Signame	
Diff's Bolster Springs	No. 9, Fl. No. 12, No. 18, No. 24, No. 36, No. 264, M Chalk Lit
Steel and Iron	No. 24, No. 36,
Obston's Try Square and T Bevelsdis 45 g. Winterbottom's Try and Miter	Chalk Lin
Staples. Sence Staples, Galvanized 8 18, 31/4 6 31/46	2-Ply Hen 3-Ply Hen 3-Ply Hen
fence Staples, Plain	
Stocks and Dies. dia 40 @ 40&5 % Blacksmith's	2, 3, 4 and Wool Paper Cotton Me
Stone	Vises.
Stone	Paratlel-
Washita Stone, No. 1. # D. 176 Washita Stone, No. 2. # D. 136	Stephen Parker's
Vashita Siips, No. 1. Extra	Wilson' Howard
Arkansas Stone, No. 1, 6 to 9 in	Bonney Millers Trentor
'urkey Slips, Chase	Merriu'
Stove Pelish. W B. 31@32¢	Backus Double Prentiss
osepa Dixors	Simpson Saw Filer Bonney
Mirror 9 9 gro \$6.00, dis - 5 Austro 9 gro \$4.75 net	Stearn's Sargent
tuby# gro \$3.75 net tising Sun, 5 gro. lots# gro \$6.50	Hopking Reading
oynton's Noon Day. # gro	Combin Cowell Ha
Tates Standard Paste Polish, 10-lb caps, per lb., 15 &	Bauer's P
Ske Sucerior Silps	Wago
apanese	Washe Smith's P. Johnson's
merican Iron Tacks. Carpet	Appleton
wedes fron Carpet Tacks	Bonney's, Washe Wedge
wedes fron Upholsterers' Tacks	Steel Well I Bili's Iron Clad
inned Swedes Iron Uphoisterers Tacksdis 70 % limp and Lace Tacksdis 60&10&10 @ 70 \$	fron Clad Whiting's
inned Gimp and Lace Tacksdis do&10&10 as 70 % merican Iron Cut Tacksdis 70&10 %	Whiting's Whiting's Well Wire.
Copper Finishing and Trunk Nais	Iron- Market.
'inishing Nalis	Market, Market,
runk and Clout Nails	Stone Br
Chair Nails	Stone, B Stone, B
inned Capped Trunk Naits	Stone, G Stone, T Tinned Anneale
eathered Carpet Tacks	AHREBIO
hoe Finders' List June 1, 1886, dis 102/10 5 Jung and Saddie Nalis, List Jan. 1, 1880:	Brass and Barb Fenc Wire on S
8ilvered	Malin's Sp Cast Steel Stuba' Ste Steel Musi
Diam and Brand	Steel Musi Picture W
Horse Shoe Brandun!form wts., 1 2¢; tinned, 16¢ Horse Shoe Brand.double unif'm wts., 22¢; tin'd, 30¢	Picture W Barb Wire Wire Clot
In 5-case lots	No. 34 Wi
Aning and Saddie Nalis, last Jan. 1, 1880;	Wire Clot Wire No. 34 Wi Wire Wire Wrenc Baxter's A Baxter's I
ommon and Ring	Baxter's A Baxter's I
ves' Tap Borers	Coes' Gen Coes' "Me Coes' Patt
Tapes, Measuring.—American	Coes' Patt Coes' Patt Girard Ste
hesterman's	Girard Ag Lamson &
Tap Borers. ommon and Ring	Lamson & Lamson & Sterling W
Tinners' Shears, &c. dis 50&10 \$	Lamson & Sterling W Bemis & C Bemis
unches—See Punches. nips, J. Mallinson & Codis 33% 8	Bemis & C Bemis & C Remis & C
Tinware	Aiken's Po The Favor Webster's
dis25&2 de 5 Extras some-	Webster's Boardman Always Re
teced, S. S. & Co	Alligator, Donohue's
TORROGO FINITORS	Acme, Bri.

## Spock	Carlosom Litters
## Spock	
## Spock	whouse
## Spock	We whouse
## Spock	We whouse
## Spock	We whouse
Spoke Trimmers	se and Rat- wase, Wood, Choker. P doz holes, 15¢ wase, Wood, Choker. P doz \$1.50, dis 10 \$2 wase, Cage, Wire. P doz \$1.50, dis 10 \$2 wase, Cage, Wire. P doz \$1.50, dis 10 \$2 wase, Catch 'em-alive. P doz \$1.50, dis 10 \$2 wase, Catch 'em-alive. P doz \$1.50, dis 10 \$2 wase, Boannaa. P gross \$1.60, dis 15 \$3 wase, Boannaa. P gross \$1.60 wase, Boannaa. P
Spoke Trimmers	se and Rat- wase, Wood, Choker. P doz holes, 15¢ wase, Wood, Choker. P doz \$1.50, dis 10 \$2 wase, Cage, Wire. P doz \$1.50, dis 10 \$2 wase, Cage, Wire. P doz \$1.50, dis 10 \$2 wase, Catch 'em-alive. P doz \$1.50, dis 10 \$2 wase, Catch 'em-alive. P doz \$1.50, dis 10 \$2 wase, Boannaa. P gross \$1.60, dis 15 \$3 wase, Boannaa. P gross \$1.60 wase, Boannaa. P
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Elitpic Concord. Platform and Half Scroll. dis 25 Squarres	er and Cheene. dis 26 g " ucks. Warehouse, &c. feld Block Co.'s list, 1882. dis 40 g thes. Boiler.—See Pipe. Boll Block Co.'s list, 1882. dis 40 g thes. Boiler.—See Pipe. Boll Block Co.'s list, 1882. dis 40 g thes. Boiler.—See Pipe. Boll Block Co.'s list, 1882. dis 40 g thes. Boll S. 22 g 30 g . 12. " " 4 and 5 g " 205 g 28 g . 13. " " 4 and 5 g " 185 g 27 g . 14. " " 4 and 5 g " 185 g 27 g . 15. " " 4 and 5 g " 17 g 20 g . 16. " " 4 and 5 g " 17 g 20 g . 17. " 5 and 5 g " 17 g 20 g . 18. " " 4 and 5 g " 17 g 20 g . 19. " " 5 and 5 g Balls (Spring Twine) . 12. " Hemp, 1 m Balls
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Elitpic Concord. Platform and Half Scroll. dis 25 Squarres	2,
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Mirror	uble Screw Legdis 15&10 \$
Mirror	npson's Adjustabledis 46 %
List. Sept. 1, 1882, and supplement, Jan. 1, 1886, American Iron Tacks. Carpet	Filers— nney's, Nos. 2 & 3
List. Sept. 1, 1882, and supplement, Jan. 1, 1886, American Iron Tacks. Carpet	gent'sdis 60&10&10 \$
List. Sept. 1, 1882, and supplement, Jan. 1, 1886, American Iron Tacks. Carpet	adingdis 3756210 s
List. Sept. 1, 1882, and supplement, Jan. 1, 1886, American Iron Tacks. Carpet	mbination Hand Vise gro, \$42.00
List. Sept. 1, 1882, and supplement, Jan. 1, 1886, American Iron Tacks. Carpet	nnev's, Nos. 2 & 5.
List. Sept. 1, 1882, and supplement. Jan. 1, 1886, American Iron Tacks. Carpet	agon Boxes.
List. Sept. 1, 1882, and supplement. Jan. 1, 1886, American Iron Tacks. Carpet	asher Cuttors.
Swedes Fron Carpet Tacks Swedes Iron Wire Carpet Tacks Swedes Iron Wire Carpet Tacks Swedes Iron Tacks Swedes Iron Tacks Swedes Iron Upholsterers' Tacks dis 70 k Tinned Swedes Iron Upholsterers' Tacks dis 60 k Mamerican Iron Cut Tacks dis 60 k Mamerican Iron Cut Tacks dis 70 k Tune Good Socks Copper Tacks dis 60 k Massarian dis 60 k Massarian Nails and Miners' Incas dis 60 k Massarian Nails and Miners' Incas dis 60 k Massarian Nails dis 60 k Massari	801 8
Diam and Brand # dox 12¢; tinned, 16¢ Stee	Ny seems # doz Pol. \$14; Jap'd, \$16. dis 55 x eton # doz \$16,00 dis 60x10 x ley's # doz \$16,00 dis 60x10 x ley's # doz \$16,00 dis 60x10 x ley's # doz \$16 x ley's # halfer # doz \$1.2 d. \$3.50; 14 at., \$4.50 diag's # doz \$1.2 d. \$1.75; 10 in., \$2.05; 12 in., \$2.75 live # \$2.05; 12 in., \$2.05; 12 in., \$2.75 live # \$2.05; 12 in., \$2.05; 12
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Diam and Brand # dox 12¢; tinned, 16¢ Stee	ting's Flat Iron Band # doz \$4.25
Diam and Brand # dox 12¢; tinned, 16¢ Stee	eli Wheels—8 in., \$1.75; 10 in., \$2.05; 12 in., \$2.75
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Diam and Brand # dox 12¢; tinned, 16¢ Stee	rket. Br't & Ann'id. Nos. 0 to 18dis 721/4 frket, Coppered. Nos. 0 to 18dis 65 i
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Diam and Brand # dox 12¢; tinned, 16¢ Stee	ne Bright and Annealed, Nos. 16 to 18. dis 65&5 ¶ ne, Bright and Annealed, Nos. 19 to 26. dis 65&10 ¶
Diam and Brand # dox 12¢; tinned, 16¢ Stee	ne, Bright and Ann'd, Nos. 27 to 38dis 72% at 5 ne, Galvanized. Nos. 19 to 30dis 55&5 s
Diam and Brand # dox 12¢; tinned, 16¢ Stee	ne, Tinned, Tinned list, Nos. 18 to 36dis 60&5 \$ ned Broom Wire, Nos. 18 to 24dis 60&5 \$
Diam and Brand # dox 12¢; tinned, 16¢ Stee	nealed Grape, Nos. 10 to 14
Diam and Brand # dox 12¢; tinned, 16¢ Stee	Fence
Diam and Brand # dox 12¢; tinned, 16¢ Stee	rket, Br't & Ann'id, Nos. 0 to 18
Diam and Brand # dox 12¢; tinned, 16¢ Stee	steel Wire
Horse Shoe Brand unitorm wts., 1 2¢; tinned, 16¢ Bar	music Wire, Nos. 12 to 30
Horse snoe Brand. double unit in wist, 22¢; tin d, 30¢ Wir	Clothes Lines. See Lines. \$\Psi 1000 \\$0.00, dis 25 i
In o-case lots	ire Cloth, green, drab and black, \$\P 100 sq. ft 4 Wire \$1.90; No. 33 Wire, \$2.00
In 5-case lots. dis 10 % No. Double-pointed Tacks. dis 80 6 804:10 % No. Wire Carpet Nalls dis 50 6 504:10 % Wire Carpet Nalls dis 50 6 504:10 % Wire Brads, R. & E. Mfg. Co. dis 50 6 504:10 % Wire Brads, R. & E. Mfg. Co.	ire Rope.—List May 1, 1886dis 3814 s
Tap Berers.	renches.—American Adjustabledis 45 s er's Adjustable "8"dis 35&10 s
ves' Tap Borers	er's Diagonal
Enterprise Mfg. Co	Mechanics' dis 60&10&3 \$ Pattern, Maileabledis 80&10 @ 80&10&5 \$
Tapes, Measuring, -American dis 25&10 \$ Coe	Pattern, Wroughtdis 80&10@80&10&5 % d Standarddis 70&10 s
Tap Horers. A	d Agriculturaldis 80&10 @ 80&10&5 \$
Thimble Skeins, See Skeins.	
Steel Wire, Standard listdis 80&10 \$ Ster	son & Sessions' Standarddis 70&10 \$ son & Sessions' Agricultural.dis 80& 10@80&10&5 \$
Shears and Snips (P. S. & W.)	son & Sessions' Standard
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Acme	re Wire. Wire Safety Guards.

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WORKS; 538 to 564 W. Tenth St. OFFICE: 36 to 40 Eleventh Ave., New York, U. S. A.

the effects of cancer in the mouth he sank into a comatose condition about 50'clock, iu which he remained until death came. The fatal termination was due rather to ex hausted vitality than to direct causes. In

Mr. Roach was pre-eminently a self-made man. Born in Ireland December 25, 1813, he came to this country when he was 15 years of age, with no other resources than a few shillings in his pocket and a good con-stitution. After some difficulty in seeking employment he obtained a position as helper in the H well Iron Works, in New Jersey, owned by James Allaire. His natural mechanical genius would not permit him to remain long as a menial. He adapted himreli quickly to the better class of work in the factory and advanced rapidly, became an expert molder, and at the end of three his frugal and careful habits had enabled him to save from his earnings \$1500. He took a small amount of cash with him when in 1834 he started West, intending to invest his savings in real estate. Before he returned Mr. Allaire had failed, and with the ironmonger's capital went that of his young workman. Not discoursged, he went to work at his trade again, id soon saved enough to enable him to start a small foundry in this city, in the conduct of which he prospered in a small way until his foundry was wrecked by the explosion of a boiler. The undaunted mechanic rebuilt his foundry, and with his capital then in hand—said to have been but \$50-he started freshly upon the career which made him known the world over. From this small beginning grew the Ætna Iron Works, laying the foundation for his fortune, which grew rapidly during the days of the war. During the struggles of his early life Mr. Roach bought up some of the tools, machinery and appliances of the Alleiro works in which he made his start in laire works, in which he made his start in this country, and these helped to furnish the machine shop and boiler shop which were annexes to the foundry he established here.

In 1868 Mr. Roach purchased the Morgan Iron Works, and subsequently added to his possessions the Neptune Iron Works, the Franklin Forge and the Allaire Works. It was four years later when he bought out the extensive shipbuilding plant of Messrs. Reaney, Son & Archbold, at Chester, Pa., and at once began on an extensive scale the manufacture of iron-hulled steamooats, steamships, yachts and smaller steam craft. The great works at Chester were models in their way, as were the vast iron foundries. shops and boiler shops he owned here. Shipbuilding on a more extensive scale than was ever before attempted in this country was carried on, and carried on most successfully. To South America, Mexico, the West Indies and other foreign corts sailed great steamers flying the American flag that were designed and built in the yards of John Roach & Son. He was justly proud of his business reputation. His transactions with customers amounted to some \$35,000,000, and yet in all these it was his boast that he had never been sued nor found it necessary to bring suit. It has been stated that 30 per cent. of the iron vessels now sailing under the American flag were constructed by Mr. Roach's firm. The ships he built for the Government were two gock for the Pensacola Navy-Yard for \$219,000, and these contracts, together with those for the three steel cruisers and the boiler shop. The plate had not been tested for tensile strength and elongation at the steel werks in the presence of the Board's surveyor, but it are not to be the steel werks in the presence of the Board's surveyor, but it are not to be the steel werks in the presence of the Board's surveyor, but it are not to be the steel werks in the presence of the Board's surveyor, but it are not to be the steel werks in the presence of the Board's surveyor, but it are not to be the stated. This was the steel werk and the plate had been to steel werks in the presence of the Board's surveyor, but it are not to steel werk and the steel werks in the plate had been to steel werks in the plate had been to steel werk and the steel werks in the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elongation the plate had not been tested for tensile strength and elongation that the plate had not been tested for tensile strength and elo 90 per cent. of all the iron vessels flying the American flag have been turned out from Mr. Roach's yards. The City of Tokic all the steel werks in the presence to have been tested by the steel makers themselves, who stamped it thus the steel makers themselves, who stamped it thus the steel makers themselves. flect credit upon his ability as a builder.

The Cast of Exhibitions

Within the last four years London has had four great exhibitions—three of them "International," popularly known as the "Fisheries,"the "Healtheries" and the "Inventions," in 1883, 1884 and 1885 respectively, and the Colonial and Indian Exhibition, which closed early in November, and was called the "Colinderies" for short. The accounts of two of the enterprises are fully made up. Official returns of the exhi-bition of 1885 and, of course, of the one just closed, do not as yet state all the details of expenditure, or even receipts, as the addiexpenditure, or even receipts, as the additional buildings, electric plant and machinery are yet to be disposed of. The Colonial and Indian Exhibition had 5,550,755 visitors; it was open 164 days, and about 1,100,000 people came in on the cheap admission days. Workmen's exhibition clubs also came on greatly reduced rates; about 150,000 persons availed themselves of this arrangement. The grea est day was the Bank holiday in August, when there were 81,516 people present. The exhibition of 1885 that of the "Inventions," had 44 rainy days; its total number of visitors was days; its total number of visitors was 3.760.581. Its receipts from all sources were \$1,042.450; its expenses, \$1,069,635, leaving a deficit of over \$27,000. The exhibition commissioners spent £3500 in carrying visitors free on the "subway" from the South Kensington Station, and nearly one-half the visitors came in by the subway turnstiles. It will be interesting to compare this showing with that at our Centennial, which was open 159 days; and it is not unfair to do so, for there are more millions of people within one day's journey of London than there were within

John Roach, the well-known builder of iron ships, died at his residence on Fifth avenue, in this city, on Monday morning, After several days of intense suffering from the effects of cancer in the mouth he can into a comatose and intense suffering from the effects of cancer in the mouth he can into a comatose are into a comat Day," the 28th day of September. The accounts of the International Fisheries Exhibition and the International Health Exhibition are made up. Each of these later exhibitions is credited with rent hausted vitality than to direct causes. In his last hours he was attended by members of the family and friends, among whom was ex-Secretary Chandler. The disease first manifested itself nearly a year ago. In the spring the cancerous parts were removed, but without giving more than temporary tellef. On Thanksgiving Day he went out for the last time, and about ten days ago the Care was pronounced hopeless.

Mr. Ranch was pre-sumently a self-made. from its next successor, the Inventions. From a subsequent line in the statement it would appearthat the "Healtheries" later awarded this sum to the "Inventions," or wiped out the indebtedness when it found it had a small surplus on hand and the Inventions was behindhand. It has about £2350 in cash at the bankers, and its debts are all paid. The Fisheries, being the earliest in the field and the state of the st in the field, and its success inspiring these yearly repetitions, did make considerable profit. It showed £14,000 apparent surplus. It was able to award £10,000 to the fund for the relief of fishermen's orphans, but, as a good part of its balance, or about £3000, had to be spent in satisfying claims made by the Royal Commissioners of 1851 and the Commissioners of Income Tax in respect of the exhibition, it looks as though the Government or the Government's commissioners were as determined to get their pound of flesh (even of fish) as the Congressional arithmeticians proved themselves to be in

Arithmeticians proved themselves to be in Philadelphia's case.

Generously conducted expositions show other profits than cash. They are immensely profitable to the people at large, to the nation, in fact, that gets its economical hints, its business hints and investment suggestions, for nothing, gets its great provides in the control of the provides of the provide for nothing; gets its great prestige, its influx of people, and especially—as was the case at our Centennial, and in this last instance of the "Colonial Exhibition"—gets its strength-ened ties among its own people. None of these things come upon the credit side of the cash account, and the hard-working accountants can usually show that the great expositions have been profitable only to the nation in whose name they exist, not to those who carry on the burden. In the case of these English exhibitions no stock subscriptions appear in the accounts rendered. The first of the four had \$43,000 in donations, and the second one, the Health Exhibition, had

Steel Boiler-Shell Plates

Mr. Thos. W. Traill, Engineer Surveyorin-Chief, reporting to the Board of Frade, respecting the cracking of a mild steel shellplate for a boiler, makes the following re

marks:

A mild steel shell-plate, intended for a boiler under construction, was cracked for about 18 inches while being worked in the boiler shop. The plate in question formed part of an outside ring or belt of plating that was being fitted in place preparatory to drilling the rivet holes. The boiler makers had been hammering the plate between two of the tack bolts in order to close the cir cumferential seams, and the crack produced was half-way between these bolts. The crack was about in inch open on the inside of the plate and scarcely visible on the outside. The plate was 14 feet 9% inches long, 5 feet 11% inches broad and 1% inch thick. It was sheared to size at the steel works and its edges were planed by the boiler-makers, but the amount so removed has not been as-certained. In order to render the curving snops of war in 1873, four monitors in of the plate easy. it had been heated at one wiew of the complications with Spain, and in 1876 two other monitors. He constructed through the bending rolls, but its temples of the Trenton, for which he perature when the bending was comreceived \$630,000. He built the sectional American flag have been turned out from themselves, who stamped it thus: "Ten-Mr. Roach's yards. The City of Tokio, the sile strength, 28.9 tons; elongation, 23.0 tons; elongation, 23 and found the result satisfactory. After the place failed, two portions of it close to the crack were cut out and tested in their normal condition by the surveyor, who found them to have a mean tensile strength of 28.25 tons per square inch, and a mean elongation in 10 inches of 21.25 per cent. He also had two adjacent pieces bent in their normal condition, and found the results satisfactory. In order to ascertain whether the plate had been softened by the heating it received in the boiler shop, the surveyor had two pieces annealed, which he tested for tensile strength and elongation. The annealing was effected by heating the annealing was effected by heating the pieces to a bright red and covering them with ashes for ab ut two hours, after which they were allowed to cool in the open air The mean results of the tests are: Tensil strength, 25.75 tons per square inch; elonga-tion in 10 inches, 28.75 per cent. The results of all the pulling tests are

given in the following table for comparison ens in Normal Conditi

Number of test.	Tensile strength per square inch. Tons.	Elongation in 10 inches. Per cent.
1 2 Mean	\$8.8 98.2 98.35	21.0 21.5 21.25
Sj	ecimens Anneale	d.
8 4 Mean	25.7	82.0 25.5 28.75

have occurred, and therefore it would appear from this case that heating a plate to a dull red, as was this one, preparatory to being bent in the rolls, does not efficiently anneal it. There is nothing in the results of the tests that accounts for the cracking of the plate, and therefore, notwithstanding an expression of opinion that a fine crack may have existed on the edge of the plate, I am forced to the conclusion that it was originally sound, and that the crack was caused by the violent vibrations set up by the heavy blows from the workmen's hammers. If the plate had been cut to the proper length it would not have puckered between the tack bolts as it did, and would not have required hammering, at least not to an inordinate degree, but it should not be overlooked that the plate before it was bent was heated to a dull red, and there is no doubt in my mind that it was bent when it had cooled to a blue heat, at which temperature it is imprudent to bend or work steel. If steel will not stand bending cold to the curvature required for the shells of cylin-drical boilers, it should not be used, and

those who do not possess rolls capable of bending plates while cold should get them. The following analysis of the plate, like the results of the mechanical tests, shows that the plate was of a mild quality, and that there was nothing unusual in its

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Sulph	THE																			0.00
Phos	pho	12	12	ı.																0.08
Manz	ane	19	e.						۰											0.57

experience At the preliminary hearing in the equity

against the railroad and coal pools Harris, president of the Lehigh Coal Navigation Company, stated: "In 1885-86 coal in cars cost \$1.35 per ton, \$1.15 for labor and 20 cents for supplies. \$1.15, 85 cents go to the miner and 30 to the workmen at the breaker. In this estimate depreciation of equipment, interest on the investment and the value of the coal in the ground are not allowed for."

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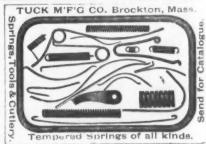
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New York Office, 95 Chambers Street, in charge of TOWER & LYON,

MECHANICAL.

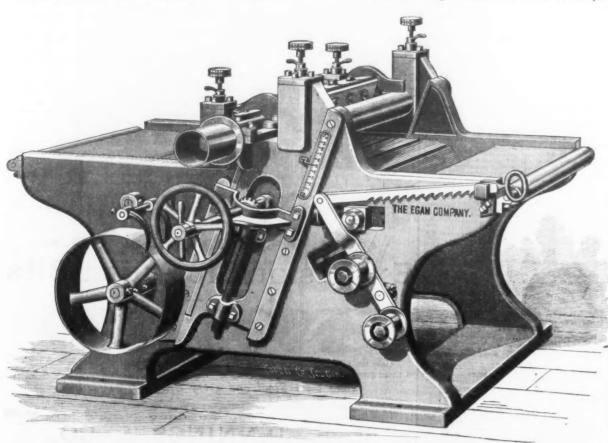
A New Endless Bed Surfacer.

We illustrate on this page a new endless bed (Farrar) surfacer, claimed to possess many new points over the old-style machines of this class, the principal one being that the different thicknesses of lumber, instead of the bed. This point will be appreciated by wood workers in general, as the results will be better than on the old style Farrar surfacers, both as to the quantity and for the smaller eccentric has some manifest advantages, and appeared not to diminish the power and efficiency of the engine. the advisability of setting the eccentrics with a greater angular advance of the smaller eccentric has some manifest advantages, and appeared not to diminish the power and efficiency of the engine. will be better than on the old style Farrar swith a greater angular advance ap surfacers, both as to the quantity and for pears evident. It is therefore proposed to try what effect will be produced by 5½ inch ating. The frame of the machine is of new eccentrics set with a greater angular advance ap the surfacers, both as to the quantity and operative with a greater angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature trics with a greater angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water are trics with a greater angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F., instead of 32° F., when the additional heat from raising feed-water temperature angular advance ap of 200° F. design and well proportioned. The cylinder vance and used with a valve having inis double-belted, carries three knives, and each lip is of finished steel. The head is

could do precisely similar work with the 5inch as with the 5 ½ inch throw. It will of course be understood that with the 5-inch throw eccentric the angular advance was increased, so that the lead was unchanged. With the shorter throw the port openings at late points of cut-off were diminished, but in notches nearer the center the difference in the port opening and cut off was very slight. As the smaller eccentric has some

required only 109.6 heat units to raise 1 pound of water from the temperature of feed to that of steam—namely, to 307.4° F. Adding 897.6 "latent" heat units, the total heat units required for pound of water evaporated into steam will be 897.6 + 109.6 = 1007.2, instead of the 1175.8 heat units required when the feed-water temperature is 32° F. Since all the heat units which must be supplied to water in boiler to generate it into steam must be derived from the fuel on the grate, the saving effected by supplying the feed-water at a temperatur otherwise waste, will be measured by $\frac{\text{otherwise wasse, }}{(1175 \text{ 8}-1007.2)} \times \frac{100}{100} = 14.3 \text{ per cent.}$

A good feed-water heater of adequate



NEW ENDLESS BED SURFACER, BUILT BY THE EGAN COMPANY, CINCINNATI, TOHIO.

raised and lowered on an incline by a wheel convenient to where operator stands. The slide in which the head adjusts are gibbed throw appears to equal the larger in virtue effect a saving of fuel, ranging from 14.3 in a superior manner, giving extra long leverage for the gibs, and are susceptible of adjustment for any wear that may take place. The bed is composed of slats put to-gether in the most approved manner, each slat (which is of special hard material) hav-ing a circular web on the under side extending between the two bearings, so that there is no warping or sagging, thus giving a strong bed with little friction. The pressure adjustment, including the two pressure rolls, is raised and lowered with the cylinder to suit the different thicknesses to be planed. Self-oiling boxes are provided for the cylinder.

The capacity of the machine is claimed to be extraordinary. It will carry through lumber even when warped or covered with ice, and will take a very heavy cut if necessary. The builders also say that it will do smoother work for this class of machine than any other yet presented. For planing mills, carpenters, furniture factories, carmother work for this class of machine than any other yet presented. For planing mills, carpenters, furniture factories, carriage shops, agricultural implement works, &c., where good work is wanted and considerable of it, it is recommended in the highest manner. Two sizes of this style of planer are made, one to work one side 24 vantage is the direct fuel saving which it inches wide by 9 inches thick, and the other to work one side 28 inches wide by 10 inches thick. The builders are the Egan Company. thick. The builders are the Egan Company, 179 to 199 W. Front street, Cincinnati, Ohio.

The Throw of Eccentrics.

Some interesting experiments have been made lately on the Chicago, Burlington and inch throw. Concerning these the Rastroad

whole valve gear would suffer when the strap seizes, but where it is secured by set is to raise the temperature of the water from screw the strap can partially seize and slip the eccentric without breaking anything or lied to the boiler unto the temperature cordoing any damage that cannot be easily re-paired. It was, of course, however, consid-ered advisable to prevent any heating that might cause even a slight delay, and it was suggested that by diminishing the throw of the eccentric the diameter of the sheave and strap might be reduced, and consequently the velocity of the rubbing surfaces would be diminished, thereby reducing the tend ency to heat. It was objected that the re-duction of the throw of the eccentrics would diminish the re-word the excentrics would duction of the throw of the eccentrics would diminish the power of the engine, and that where 5½-inch throw eccentrics had been substituted for 5-inch the engines had been substituted for 5-inch the engines had been able to hall bearing loads in the substituted for substituted for 5-inch the engines had been been substituted for 5-inch the engines had been been substituted for 5-inch the engines had been been substituted for 5-inch the engines had been substituted for 5-inch the engines had been been substituted for 5-inch the engines had been able to haul beavier loads in the same notch.

On examining this question it was found that this last assertion was on the surface correct, as in changing the eccentrics the notches in the quadrant had not been remarked, and consequently, when the lever into steam at 60 pounds gauge pressure, cline of about 1 inch to the foot. The fire was in the notch, marked as cutting off at 14 correct, as in changing the eccentrics the notches in the quadrant had not been re-

of its greater angular advance. Hence it is possible that the longer throw, combined with the greater angular advance, will give better results than either of these features singly.

The Value of Feed-Water Heaters.

Vers we extract portions of an article on matter compared to 'The Value of Feed-Water Heaters." As an element of fuel economy the feed water heater is not as generally well known as it ought to be, and the facts and figures which we append will therefore, no doubt, prove interesting to many boiler users. We

It always pays to make use of feed-water heaters to supply the water to the boilers at a high temperature. In the first place this is conducive to the durability and lifetime of the boiler. It takes away all chance of an rived from the exhaust steam of engines and heating plants, which would otherwise go off into the atmosphere as so much waste. To fully appreciate the saving effected by the use of feed water heaters of adequate proportion, which utilizing exhaust steam made lately on the Chicago, Burlington and otherwise going to waste, raise the temperature of the feed-water from the atmospheric merits of eccentrics with 5-inch and 5½ temperature to about 200° F., the process of generation of steam in the boiler, and heat requirements, must be kept in mind.

Some little difficulty has been experienced with slipped eccentrics, almost the only trouble caused by the valve gear. The eccentrics, of course, slipped because the strap heated. Were the eccentric keyed on the change the molecular constitution of the water so as to transform it into steam. This so-called "latent" heat performs internal work, and is actually represented in the steam by its molecular activity-viz., by the expansive and other peculiar properties distinguishing steam.

that the atmospheric or normal temperature of the water (in a winter's day) approaches

perature of feed-water up to 200° F., and effect a saving of fuel, ranging from 14.3 From a recent issue of the Engineering and depreciation on first cost, is a small where we extract portions of an article on matter compared to the money value of the

The Monarch Boller.

per cent. to 9.03 per cent., according as the atmospheric or normal temperature of the water varies from 32° F. in the hight of winter, to 100° F. in the hight of summer. It will readily be appreciated that the first cost of heater, which enters in the current expense account only as the sum of interest and depreciation on first cost in a small running order. The inside flange is reduced in the same way. The pieces of steel are laid in the sand and cast in the shoe, the slow cooling not having the effect of softening this steel by annealing it. We understand the device has been patented.

The Indicator on Locomotives.

Foreign Machinery in Italy

100 woolen factories, with a total of 2500

hand looms and 900 power looms; and 31

from Belgium. The circular machines in the knitted goods factory are of French and

German make, but in Biella itself some have been imported from England. The reasons given why English looms have not obtained a footing may afford some hints as to the local requirements. Thus, one manufacturer found that English looms were too heavy for his available water-power; another considered it impossible for them to compete with the Germans, because the latter forward the goods freight paid, and give long credits; while a third stated that English looms were not suited for the style of manufacture carried on in the locality, which requires machinery that can be readily adapted to various works, whereas English looms are suitable only where large

to be used by the pupils, and sold when oc-casion offers. The director of the establishment is of opinion that pupils who are studying to become managers of mills would thus accustom themselves to the working of

Device for Truing Up Locomotive Driving-Wheels. Mr. James Meehan, superintendent of motive-power of the Cincinnati, New Or-leans and Texas Pacific Railway, has de-signed an ingenious device for truing up locomotive driving-wheels that through

wear of the tread have got a ridge left on the outside of the tire tread. The shoe has

that the hard pieces act like scrapers, very quickly reducing the protuberance that is so

destructive to frogs, and sends many loco-motives to the shops for tire turning when every other part about the engine is in good

machinery to the school.

In the last issue of the National Car and We give two views of a new boiler recently placed on the market by the Morris some very sensible advice on the use of the Machine Works, of Baldwinsville, N. Y. indicator on locomotives. Among other

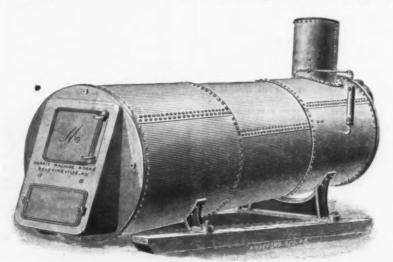


Fig. 1.-General View

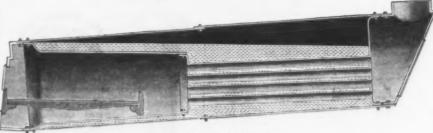


Fig. 2.-Longitudinal Section,

THE MONARCH BOILER, BUILT BY THE MORRIS MACHINE WORKS, BALDWINSVILLE N. V.

The boiler is of a novel design, and embraces | things he says: "All traveling engineers | Canada and is threatening to do so in the

boiler, supplied at 32° F., to be generated at 32° F., to be generated on the lever was in the notch, marked as cutting off at 14 the supplied, inches the actual cut-off with the 5½-inch there will be required, and must be supplied, there will be required to raise the question by running an engine with a train of given weight over the same piece of road, one trip with the 5½-inch and another with the 5½-inch throw eccentric. The temperature of the steam at 75 with the 5½-inch throw eccentric. The temperature of the steam at 75 with the 5½-inch throw eccentric. The temperature of the steam at 75 with the 5½-inch throw eccentric. The temperature of the steam at 75 with the 5½-inch throw eccentric. The temperature of the feed-with the 5½-inch throw eccentric. The speed was noted at frequent intervals, and it was found that practically the engine.

In our issue of last week, referring to the steam at 75 was pointed to locomotive sublet in the foot. The first is the conical in shape, and is secured to the shell by wide flanges. Pertain the steam is distributed in the cylinders of some the track engine. These are not the kind of steam is track engine. These are not the kind of once trip with the sit too often used as a sort of scientific plaything, or to show how perfectly the secured to the shell by wide flanges. Pertain the steam is distributed in the cylinders of some the term is diamed. These are not the kind of once trip with the sit too often used as a sort of scientific plaything, or to show how perfectly the secured to the shell by wide flanges. Pertain the scientific plaything, or to show how perfectly the secured to the shell by wide flanges. The beat of into stages as a cort of scientific plaything, or to show how perfectly the secured to the shell by wide flanges. The beat of scientific plaything, or to show how perfectly the scientific plaything, or to show how perfectly the scientific plaything or to show how perfectly the scientific plaything is the sounce of scientific plaything. The scientific playth

applied, and its aid in diagnosing the malady will often effect great saving at little ex-pense. Every master mechanic who applies In the course of a tour by the British onsul General Colnaghi in the North of the indicator in this spirit will find the in-Italy, he has made some interesting notes strument a profitable investment on the use of foreign machinery in the mills of the Biella district, which contains over

Double-Seaming Machines.

The Niagara Stamping and Tool Company, of Buffalo, N. Y., are just putting upon the market a line of double-seaming machines, cotton factories, with 2200 power looms and 1020 hand looms; besides 12 factories of in which the small trade in particular will cotton, woolen and mixed knitted goods. It feel a special interest. One of these machines is illustrated in the accompanying engraving. The machines are intended for



New Double Seaming Machine

crimping the tops and bottoms of all classes of tinware. The makers inform us that they operate upon a new principle. One motion of the hand-lever shown in the pieces of hard Muchet steel inserted on the part that will rest on the portion of the tire that needs reducing, and the shoe is applied engraving does the work. The tops or bottoms used in this class of tinware are provided with a depression, sometimes called a deflection. This depression, which when the engine or car is in service in the same way as a brake shoe is used. The intention is to use blocks of emery secured to the shoe to true up chilled cast-iron wheels. The device has been applied very successfully to locomotives. It is found that the hard pieces act like servery very may be right-angular in form, or acute angular or grooved, fits a so called chuck on the live spindle of the double seamer.

Accordingly a special chuck is required for each size of top or bottom that is to be used The hand-lever carries on its forward end two rollers, one of which turns the edges of the top or bottom, in form a little more than semi-circular, and the other completes the double turn-or, in other words, finishes the double seam. The makers assert that by means of this double seamer the bottom of the smallest cup or baking-powder box may be as readily double seamed as the largest dish-pan. The machines are made in various sizes, fitted either for the bench or on legs, and are provided with a crank-wheel for operating by hand or with a plain pulley for one speed, in case they are to be run by power. Cone pulleys with counter-shafts are also supplied when required. In the circular describing this machine, the assertion is made that a hand machine of this variety can be as successfully operated in a small tinshop as the best power machine in a large tin factory. It is there-fore asserted that a tinner providing himself with one of these machines, and with a press and the necessary dies for the bodies and bottoms of tinware, is as well equipped and can as readily produce piecedware as the largest manufacturing concern

English and American Locomotives.

In a long and interesting letter that lately appeared in Engineering continuing the dis-cussion on English and American locomotives, from the pen of John Fernie, the fol-lowing remarks are made:

During 16 years I have seen the most

I. The Westinghouse brake was then in its infancy; now it is automatic, and is known all over the world.

2. Steel fire boxes were only experimental Now they are universal on 16 years ago. Now th 3. The power of the engine has been

mmensely increased, while its cost has been

much reduced 4. The mileage of the engines has been nearly doubled, and the full value of duplicate engines proved.

5. Dining, buffet and parlor cars avo made traveling by limited trains as sumptuous as royal trains in Europe, while in ordinary trains the size of carriages and the comfort and convenience of passengers have been largely increased.

6. Wagons (cars) which then only carried from 10 to 15 tons are now being increased to carry 30 tons.

7. All this has been accomplished with a great reduction of freight

and passenger rates.

Now, can you point out to me any improvements in English or Irish railways corresponding to this! Further, the American engine has supplanted the English engine in

Can there be any doubt that the English engine is doomed soon to extinction, and the American engine will take its place, and I say the sooner the better, for its use

WHOLESALE METAL PRICES, JANUARY 12, 1887.

METALS.

RHON.—Duty: Bars, 8-10¢ to 11-10¢ % %; provided that no Bar iron shall pay a less rate of duty than 85 s. Sheet, 11-0¢ to 15-10¢ % %. Band, Hoop ard Scroll, 4¢ to 14-10¢ % %. Raifroad Bars weighing more than 25 % % yard, 7-10¢ of 1¢ % %. Standard American Pig Iron.

No. 1 Scotch Pig Iron.

Scrap. \$24.50 @ 25.00

Sheet Iron from Store.

American Cold Rolled B. B... \$\mathbb{B}\$ \$\psi_{\mathbb{B}}\$ 7 \$\psi_{\mathbb{B}}\$ \$\text{TEKE.}.\tag{\mathbb{D}}\$ = \$\mathbb{B}\$. Wire.\text{See Wire.}\text{See Wire.}\text{See Wire.}\text{See Wire.}\text{See Wire.}\text{See Valued above \$4\$ and not above \$7\$ \mathbb{B}\$ \mathbb{D}\$ \mathbb{B}\$ \mathbb{D}\$ \mathbb{B}\$ \mathbb{D}\$ \mathbb{

American Cast Steel.

For American Steel, see Pittsburgh quotations. Chrome Steel.

Foo: Steel, ordinary sizes, % to 3 inches.

Best Cast Extra Cast...... Circular Saw Plates... Blister, ist quality.
German Steel, Best.
2d quality.
3d quality.
Bheet Cast Steel, 1st quality.

Sd quanty Tile. Durr Plates, Sheets, Tagger and Torne, 1¢ \$\psi\$ Bars. Block and Pign free. \$\psi\$ 23 \$\epsi\$ 23\\$\epsi\$ hance \$\psi\$ 223\\$\epsi\$ English \$\psi\$ 223\\$\epsi\$ 23\\$\epsi\$ English \$\psi\$ 23\\$\epsi\$ 24 \$\epsi\$ Bar \$\psi\$ 25 \$\epsi\$ 25 \$\epsi\$ Charcoal Tin Plates.

I C 12X12 280 Success I C 20X25, 113 I X 10X14 225 sheets I X 12X12 225 sheets I X 14X90, 113 O C 1916x17, 100 D X 1916x17, 100 Every additional Coke Tin Plates. Ordinary \$4.35 (4 4.45

I C 10x14 I C 14x30 JC 12x12 I C 10xx0, gutters, 225 sheets, 5.00 I C 30x25 112 sheets\$4.50 4.60 @ 4.65 9.00 @ 9.50 8.40 @ 8.70

Tin Boiler Plates. 1XX 14x26, 2 sheets for No. 7, 112 sheets. @ \$12.00 (XX 14x28, 2 " " No. 8, " ... @ 13.00 1XX 14x81, 2 " " No. 9, " ... @ 15.00 6 18,00 15,00 IXX 14x31. 2 " No. 9. " 15.00

COPPER.—DUTY: Pig. Bar and Ingot. 4#: Old
Copper, 3# \(\psi \) \(\text{M} \) Manulactured (including all
articles of which Copper is a component of chief
value). 30 \(\text{ s ad valorem.} \)
Ingot. Lake \(\psi \) \(\psi \) 12 \(\psi \) 2344
Ingot. Lake \(\psi \) \(\psi \) 12 \(\psi \) 2444
Ingot. Anchor \(\psi \) 10344 \(\psi \) 11 \(\psi \) 2 \(\psi \)

Cold Bolled Sheet.

16 ca. per square foot, and heavier \(\psi \) \(\psi \) 3.14
12 and 13 os. per square foot \(\psi \) \(\psi \) 3.14
12 and 13 os. per square foot \(\psi \) \(\psi \) 3.14
13 and 14 os. per square foot \(\psi \) \(\psi \) 3.14
14 and 15 os. per square foot \(\psi \) \(\psi \) 3.14
15 and 16 os. per square foot \(\psi \) \(\psi \) 3.14
16 and 11 os. per square foot \(\psi \) \(\psi \) 3.14
17 and 19 os. per square foot \(\psi \) \(\psi \) 3.14

Sheathing Copper. (14 x 48.) | Hot | Cold. | Rolled | Rolle

troum & Sharpe's Gauge the Standard for Metal; Old English Gauge the Standard for Wire. cass Manufacturers' Price Last, January 17, 1884 Manufacturers' Price Last, January 18, 1884 Manufacturers' Price Last, Manu

Cast Steel, Steel Wire,

All Nos. to No. 16, inclusive ...
No. 17 and 18 ...
19 and 30 ...
19 22 ...
19 22 ...
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FRENCH GLASS. August 20, 1865. Fer Box, 50 feet

1st. | 2d. | 8d. | 4th. EFHIER HH HB \$11.50 \$10.50 \$10.00 \$9.50 18.00 12.25 11.50 10.75 16.00 14.50 18.25

1st. | 2d. | 3d. | 46% EFHIEH HH HB 25 6 x 8 to 10 x 15. \$14.00 \$13.30 \$13.00 \$13.2.95 \$40 11 x 14 to 16 x 94. 17.00 16.00 15.25 14.50 \$50 18 x 22 to 30 x 30. 22.0 00.50 19.00 \$64 15 x 36 to 24 x 30. 24 0. 22.00 00.50 19.00 \$60 26 x 28 to 24 x 36. 26.00 94.00 21.75 70 80 x 36 to 36 x 44. 27.50 29.00 25.00 94.50 \$94.00 25.00 94.00 25.00 95.0

Sizes above—\$15 per box extra for every 5 inches. Discount 75, 10&5 @ 80 s. PAPER STOCK. &c.

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Seconds, City No. 1.
Seconds, City No. 2.
Colors, F. cwt.
Manua Rope.
"Tarred.
Gunny Bagging, No.
No. Pits and Flats, iz uz.

O'Neill's Patent Planished Copper. Net.

14 and 16 oz. and heavier Net By the case. W B 256
18 oz. and lighter... Net Boiler Street.

7 in., 14x26. 8 in., 14x36. 9 in., 14x30.

and 16 oz. and heavier Net By the case. W B 256
And all sizes not over xib fr Wide.)

24x36 and 30x30.

and 16 oz. and heavier... W B 316
oz.
Flanished Brass same price as Planished Copper
Copper Wire.—(See Wire.)

Sheathing Metal.

Yellow Sheathing Metal. PAINTS, OILS, &c., Paints, Black, Lamp-Cusch Painters'. Ordinary.

" Chinese dry....... " Ultramarine...... 31.65 31.70 31.65 31.70 asst'd cans, 11#; kegs, 85 9 31.56 10 3 13# Raw, powdered...
Raw, powdered...
In oil....
Vermilion, Chinese.....
Ragilsh.... | White | Wire | Put up in 63 | boundles | Nos. 00 to 9, 10, 11, 12, 13, 14, 15, 16, 17, 18. | White Lead, American, Common | Nos. 00 to 9, 10, 11, 12, 13, 14, 15, 16, 17, 18. | White Lead, American, pure dry | Charcoal. | dis 671/6 g | White Paris, English | White Lead, American, pure dry | White Paris, English | White Lead, American, pure dry | Gis 47/6 g | Gis 47/55 @ 604 White Lead, American, pure dry in oil. White Paris, English Prime 25ac Yellow Ochre, French. 16 01. asst'd cans, 11c 1 kegs. 5c 1 we vermont. 17 6 7 c 1 1 casks, 15c 1 1 2 2 c 1 1 2 2 c 1 2 Bleached Whale, \$\Pi\$ gal.

Sperm, \$\Pi\$ gal.

Elephant, \$\Pi\$ gal.

Drilling Cylinder.

Empire Cylinder.

Engine.

Fish Oil. Pressed

Lard, Prime Winter.

No. 1 Extra

Linseed, Raw. on casks and bbis.

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Calcutta
Machinery
M'ners'Oil
Neatsfoot
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West Virginia Asphaltum, Cuban, \$\Psi\$ benzine. \$\Psi\$ gain \$\Psi\$ g Asphaltum, Cuban, P b Egyptian....

INTERCHANGEABLE LOCK-CORNER SHELF BOXES.

Screw Cases; &c., FOR THE HARDWARE TRADE.

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We make the best all-steel Axe in the world.

Florence" Lamp Stove, Superior to any Extant.

WEIGHT, Boils quart Water in 8 minutes, Bakes Biscuit in 20 minutes, Bread " 25 " POUNDS. Broils Steak " 10

Heats, Lights. GIVES A

Reservoir enamelled inside and out; base and turret of Chimney nickeled; Chimney reversible so the light may be toward or from you; Reservoir, 6½ in. long, 5½ in. wide, 2½ in. deep, holds quart oil; burns eight hours; Stove stands 9½ in. high. PRICE, \$10.00 per doz., packed ½ doz.

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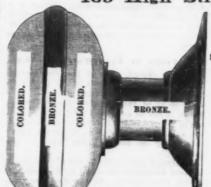


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EMPIRE PORTABLE FORGE CO.,

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NEW YORK, July 29th, 1886.

New York, July 29th, 1886.

Dear Sir: I have much pleasure in informing you that the Cable Chains used throughout my house, built twelve years aso, have not in a single instance siven any trouble, and see no reason why they should not lat a lifetime. Yours respectfully,

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Mr. Thomas Morros.

Dear Sir: We take pleasure in testifying to the excellency of your patent Champion and Cable Sash Chains. The best endorsement we can offer is that in no instance coming under our observation, where it was properly hung, has it failed to give entire satisfaction. We can cheerfully recommend (fing. and Chains to all parties that consect a hundred-fold in the last at months. It is becoming very popular, has worked a revolution, and will in time supersede all sash cords.

Respectfully yours.

HOPKINS & STEINER,

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MANUFACTURED BY THOMAS MORTON.



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LAFLIN & RAND POWDER CO.

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Manufacture and seil the following celebrated brands of Sporting rowder, known everywhere as Orange Lightning, Orange Ducking Orange Rifle.

More popular than any Powder now in u BLASTING POWDER and ELECTRICAL BLASTING APPARATUS. MILITARY POWDER on hand and made to order

Safety Fuse, Frictional and Platinum Fuses. phlets showing sizes of grain sent free.



Wrought Iron. Anti-Friction.

IT EXCELS ALL OTHERS

Security of Door. Strength of Material. Ease of Motion. Simplicity of Application.

THIS HANGER

Requires no Oil. Has no Flanged Wheels. Packs Snugly for Shipment. SELLS BEST.

ICTOR

ALASKA POKERS AND LIFTERS

NEVER BECOME HEATED TO BURN THE HANDS

ALASKA FIRE SETS AND STANDS.



Shovels, Pokers and Lifters.

Stand and Attachments Handsomely Nickel Plated.

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TROY NICKEL WORKS,

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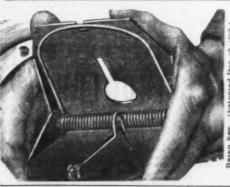
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Exports.

The following table presents the exports of The following table presents the exports of Carridges, es a Hardware, Iron, Steel, Metals, &c., from Machy, pkgs. 3 the port of New York, for the west and. the port of New York, for the week ending January 11, 1887:

Danish West Indies. | British Possessions in Africa.
Quan. Val.
Ag. imp. pkgs 82 1,280
Sew. ma., cs. 3 129
Pumps, pkgs 2 77
Mf. iron, pkgs 48 17
Hdw., cs. 131 3,259
Nalls, kegs. 48 104
Clocks, cs. 4 49
British Australia Quan. Val. Tinware, cs... 4 \$35 Sew. ma., cs. 8 62 Dutch East Indies. 47 Danish West Indies.

Mach'y, pkgs 3 560
Nails, kegs... 110 330
Lead, cs.... 5 40
Mf. iron,pkgs. 55 20

Hamburg. Mach'y, pkgs. 29 2.664 Valves, cs... 57 4,030 Guns, cs.... 10 1,216 luns, cs..... ltamp'd ware 242 887 891 120 Bremen.

Tromsce. Hdw., cs.... 18 Ag. imp.,pkge 1 Odessa.

7 258 Pumps, pkgs. Hdw., cs..... 5 Mf. iron, pkgs 20 Clocks, pkgs.. 17 pkgs.. Berlin. 8 628 Mach'y pkgs.

St. Petersburg. Mach'y, pkge. 1 Gottenburg. Mf. iron, pkgs. Sew. ma. oil. cs.......... Wringers, cs. Metal goods,

case. . . . 1 Hdw., pkgs. . . 25 Clocks. cs. . . . 97 Rotterdam. 400 Wringers, cs. Amsterdam.

Ag. imp., pkgs 25 Hdw., cs.... 84 Wringers, cs.. 12 Sew. ma., cs. 6 Christiania.

Hdw., cs. Cardiff. Mach'y, pkge 1 Halifax, Eng.

Mach'y, pkgs. 28 4,700 Liverpool. | Mach'y, pkgs. 5 | Water-wheel. 1 | 145 | Shears, cs. 5 | 1,485 | Pumps, pkgs. 1 | 536 | Old brass, cks. 75 | 2,783 | Saws, cs. 58 | 596 | Hdw., pkgs. 26 | 982 | Hdw., pkgs. 26 | 982 | Sew. ma., cs. 141 | 3,105 | Mag. ore. bags 241 | 244 | Tinware, cs. 2 | 00 | Clocks, cs. 111 | 1,775 | London. | Bitlao.

London. Ag.imp., pkgs 105 Hdw., pkgs... 115 Sew. ma., cs.. 311 Mach'y, pkgs... 41 Mf. iron, pkgs 1 Tin rock, cs... 17 Saws, cs... 9 Ox. zinc, bbis 100 Clocks, cs... 287 Cartridges

Clocks, cs..... Cartridges, Antwerp. Hdw Hull. Hdw., cs...

Wringers, cs.. Sew. ma., cs. 82 Glasgow. Mf.iron, pkge. 1 Sew. ma., cs. 175

Sew. ma., cs. Mach'y, pkge Wire brushes, Pumps, pkgs. Wire goods,

Dundee. Dublin. Firearms, cs. 3 Hdw..cs.... 22 Pumps, pkge. 1 Belfast.

Mach'y, pkgs. 6 Sew. ma., cs., 20 Hong Kong. Hdw., cs. . . . 3 120 Clocks, cs . . . 107 1,879 Nova Scotia,

Clocks, cs. . . . 12 New Zealand. . 12 200

| New Zealand | Bells, Cas | 1 | Spikes, kegs | 20 | Sew | ma. oil, cs | 1 | Spikes, kegs | 20 | Sew | ma. oil, cs | 1 | Spikes, kegs | 20 | Sew | ma. oil, cs | 1 | Spikes, kegs | 20 | Sew | ma. oil, cs | 1 | Spikes, kegs | 20 | Sew | ma. oil, cs | 1 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Spikes, kegs | 20 | Spikes, kegs | 20 | Sew | ma. oil, cs | 20 | Spikes, kegs | 20 | Spikes,

Sew ma., cs.	5	52	Cutsery, cs.	1
British West Indies	Mf. iron, pkgs	46	Pumps, pkgs	46
Pumps, pkgs	28	Iron, pkge	1	
Tinware, cs.	6	60		
Hdw., pkgs	28	207		
Nails, kegs	71	210	Clocks, cs.	36
Chocks, cs.	3	68	Mach'y, pkgs	6
Nails, cs.	16	48	Hdw., cs.	42

British Australia. Mach'y, pkgs. 41 1,500 Bordeaux.

Mach'y, pkgs. 6 317 Cuba.

Hdw. pkgs. 128 1,519

Mach y, pkgs 97 6,694

Clocks, pkgs. 18 220

Naiis, kegs. 79 819

Cutlery, cs. 17 497

Sew. ma., cs. 29 575

Tin, case. 1 18

Mf. iron, pkgs 109

Spikes, kegs. 175 438

Fumps, pkgs. 3 18

Tinfoil, cs. 6 120

Sew. ma., cs. 47 1,428 Cuba. Havre.

Hawre.

Sew. ma., cs., 250 2,293

Hdw., cs., 19 317

Clocks, cs., 13 907

Ag. imp.,pkgs 37 8,275

Porto Rico.

Hdw., cs..... 6 Mf.iron, pkgs. 27 Mach'y, pkgs. 27 Clocks, cs.... 2 United States of Colombia.

Mdse., cs., 36
Taylor, Thos.
Mdse., cs., 11
Tilden, W. & Co.
Mach'y, cs., 3
Thurnauer, G. M. Mf. iron, pkgs 471 Mach'y, pkgs. 65 Cartridges, cs. 10 Nails, kegs... 148 Cases, 8 Wiebusch & Hilger, Anvils, 178 Cases, 12 Cases, 2 Mdse., cs., 47 Witte, John G. & Bro. Culery cs., 5 Order, Packages, 2 58 77 115 462 Revolvers, cs
Steel, pkge...
Copper, cs...
Zinc, pkgs...
Shot, cs...
Sew. ma., cs.
Hdw., pkgs...
Cutlery, cs...
Clocks, cs...
Tinware, cs.
Iron nkga 50

| Shot, cs. 2 | Sew. ma., cs. 18 | Hdw., pkgs. 123 | Cuttery, cs. 80 | Clocks, cs. 2 | Z | Tinware, cs. 18 | Iron bridges. 2 | Tacks, cs. 3 | Brass goods, case 1 | Lead pipe, crates. 5 1 crates 5 Sheet lead, lbs 557

Argentine Republic Mf. iron, pkgs 3 Hdw, pkgs... 127 Stampedware cs..... 96 Clocks, pkgs... 24

Bilbao.

Firearms, cs.. Cartridges, case..... 216

Agateware, cs Clocks, cs.... 22 | Hdw., pkgs... | Mach'y, pkgs... | Mc.iron, pkgs... | Mf.iron, pkgs... | Nails, kegs... | Ag.imp., pkgo | Cutlery, case. | Tacks, cs... | 1 Shanghai.

es.bx Copper wire, 283 San Domingo

Cutlery, case
Hdw., pkgs.
Sew. ma, cs.,
Mf. iron, pkgs.
Mach'y, pkgs.
Nails, kegs.
Nails, cs.,
Railroad cars
Tinware, cs.,
Y. m. sheathing. case...

| Ecuador. | Hdw.cs. | 38 | Pump. | 1 | Cuttery, cs. | 55 | Bayonets, cs. | 7 | Railroad cars | 2 | 224 | Fountain | 1 | 126 | Mf. iron, pkgs | 39 | 36 |

Clocks, cs... Mexico. Mexico.

Mach'y, pkgs 52
Cartridges,cs. 29
Nails, cs. . . 10
Sew. ma., cs. . 30
Nails, kegs. . 77
Firearms, cs. . 4
Punnos, pkzs. 19

Graniteware, cs. 8 169
Hdw. case. 1 55
Washing ma. case. 1 26
Clocks. cs. 4 114
Percussion caps. cs. 2 255
Mach'y, pkgs. 3 350
Copper tubes, bzs. 2 118
British East Indies. Clocks, cs. 12 300
Clocks, cs. 12 300
Clocks, cs. 12 300 Ag.imp., pkgs 11 Bells, cae.... 1

Central America.

Nails, cs. 28
Mach'y, pkgs 4
Tacks, cs. 18
Mf. iron, pkgs 118
Hdw. cs. 346
Clocks, cs. 117

Imports.

The following were the Imports of Haraware, Iron, Steel and Metals into the Port of New York for the week ending January 12.

Harduare. Auffmordt, C. A. & Co. Mach'y, pkgs., 3 Boker, Hermann & Co. Mdse., cs., 49

Mdse., cs., 49
Conture, A. P.
Mach'y, cs., 18
Field, Altred & Co.
Mdse., cs., 15
Chains, cks., 25
Folsom, H. & D.
Arms, cs., 3
Jackson, R. D. & Co.
Tierce, 1

Newton & Shipm

Files cks., 2 Schoverling, A. Mdse., cs., 7 Schutte, W. & Co. Mdse., cs., 96

Baring Bros. & Co.

Sneets, bdls., 255 Crocker Bros. Spiegel, tons. 265½ Plg. tons, 100 German Bank of Lon-don,

Bars, bdls., 8

Pig, tons, 100

der.
Old rails, 6826
Old rails, pcs., 3796
Flat bars, 102
Pig, tons, 60
Tubes, 2579
Spiegel, tons, 400
Spiegel, 191. 1
Old fish plates, tons, 100

Abbott, Jere.
Cases, 53
Wire rods, coils.,
12,911
Wire, coils, 5442
Baring Bros. & Co.
Billets, 1628
Downing R. F. & Co.
Rings, 41
German Bank of London.

Jackson, R. D. & Co. Tierce, 1 Johnson, John & Co. Mach'y, pkgs., 38 McCoy & Sanders, Mdse., cs., 2 Merch. Desp. Co. Arms, cases, 4

German Bank of London,
Steel barrel hoops,
bols., 6130
Bars, bdls., 6
Heyn, Alf.
Rods, bdls., 1256
Lalance M7g. Co.
Sheets, bdls., 127
Mort n, Bliss & Co.
Plates, 355
Naylor & Co.
Ingots, 980
Rods, bdls., 2230
Billets, 803
Newt n & Shipman,
Bdls. 37
Bars, 28
Piditch, F. S.
Pkgs., 187
Order.
Strips, cks., 20
Bundles, 105
Old rails, tons., 106
Slabs, 2-36
Rails, 5753
Car-wheel tires, 5
Forgings, 64

Metals.

Metals.

Baker, J. H. & Co.
Plumbago, bbis., 817
Bruce & Cook.

Tin plates, bxs., 761
Field, Alfred & Co.
Gun caps., cs., 28
Lamarche, H. & Sons.
Zinc. cks., 20
Lau, J. H. & Co.
Blasting caps., cs., 20
Phelps, Dodge & Co.
Tin plates, bxs.,
18,520
Antimony, cks., 50

Antimony, cks., 50 Pickhardt & Kutroff, Aluminium, pkgs.,

Thurnauer, G. M. Lanterns, cks, 3 Order, Tin plates, bxs., 14,262 14,282 Copper waste, bags, 1024 Bismuth, bbls, 4 Bismuth, cs., 2 Tin, s'abs, 2628 Antimony, cks., 89 Quicksilver, bottles, 100

100 Rods, bdls., 79 Wire rods, coils, 308 The imports at this port of Cutlery, Hard-

ware and Metals during the week suding January 7 were as follows: Anvils Copper Cutiery Dutch metal... Guns Hardware Iron, spiegel, tons. Iron tubes, tons. Iron tubes, tons. Iron, other, tons. Machinery Metal goods. Nails Needles. Nickel. 4,460 2,433 3,187 4,099 2,422 2,771 9,892 8,068 942 167,500 1,265 171,409 228,861 2,388 1,151 Quicksilver Regulus antimony Saddlery Steel Steel... Spelter, B... Tin, bys. Tin, slabs, 11,256. Wire... Zinc, oxide...

Electrical energy was compared to me-chanical energy by Mr. Carl Hering at a recent meeting of the Engineers' Club by means of some familiar illustrations. He said that an Edison telephone consumes said that an Edison telephone consumes about one thousandth of the power in a said to be equivalent in some cases to the work of a 100 horse power engine for the discharge of a some cases to the work one two said to be equivalent in some cases to the work of a 100 horse power engine for two said to be equivalent in some cases to the work of a 100 horse power engine for two said to be said to be equivalent in some cases to the work of the said to be equivalent in some cases to the work of the said to be equivalent in some cases to the work of the said to be equivalent in the said to be equi A series of arc lamps is represented quanti-tatively by a series of waterfalls, each 50 feet high, discharging 45 gallons per minute; a set of incandescent lamps, by a single fall of 100 feet, divided into small falls, each of 4 gallons per minute.

A Pitteburgh paper states that the wrought-iron pipe industry alone employs 11 mills in Allegheny County, besides others which are partially employed in furnishing skelp iron to the pipe mills. A close estimate places the production of wrought-iron pipes in 1886 at about 240,000 tons, or, taking the average size to be 6 inches, weighing 28 pounds to the foot, a line of 118 pp 3500 miles long, reaching across the continent. The prospects of this trade are fully as good for 1887 as they were in 836, and the taking the average size to be 6 inches most of the manufacturers having orders enough booked to employ the mills throughout the year.

The Negaunee (Mich.), Iron Herald chron-The Negaunee (Mich.), Iron Herald chronicles the sale of the Buffalo Mine, west of that city, for the comfortable sum of \$200,000, one half in cash and the balance in 30 days. The mine was opened late this season, and on December 1 the profits had met the entire expense of opening and equipping and some \$14,000 in addition.

On December 24, the Elyton Land Company, of Birmingham, made its stockholders happy by declaring a 100 per cent. dividend, making a total dividend for the year of 340 per cent. A few days ago one share of this per cent. A low days age which is \$100, sold stock, the per value of which is \$100, sold for \$360c.



L. COES'

GENUINE IMPROVED Knife Handle

PATENT

Screw Wrenches

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Sliding Door Hangers,

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TRANSOM LIFTER,

ADJUSTABLE SAW VISES, SPOKE SHAVES, SPOKE TRIMMERS, BENCH HOOKS, HOLLOW AUGERS, EXCELSIOR CAN OPENERS,





PHILADELPHIA.

Parlor Door Hanger

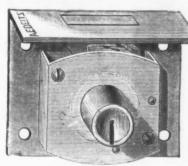
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The attention of Hematite ore miners is called to our new Jig. The simplest and most effective separator now in use.

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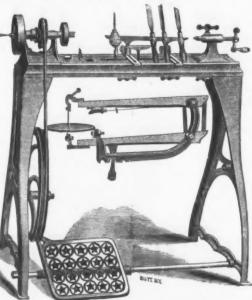
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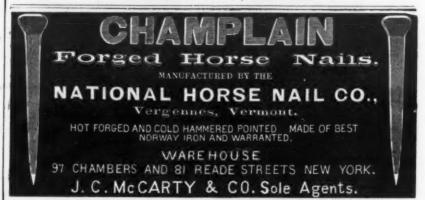
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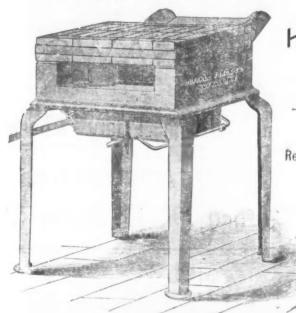
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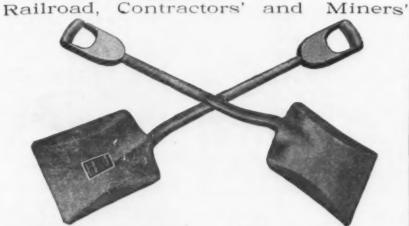
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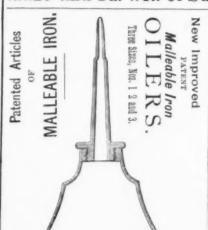
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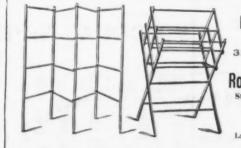
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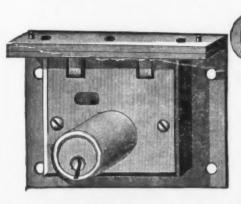
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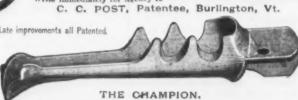
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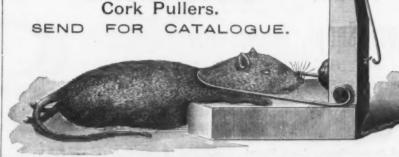
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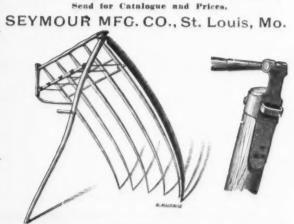
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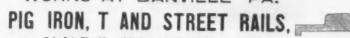
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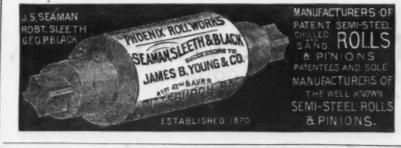
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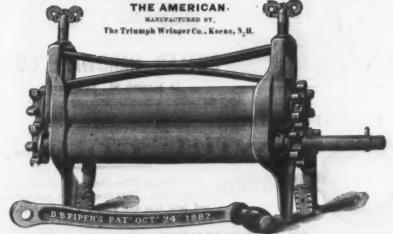
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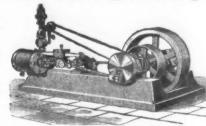
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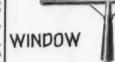
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The Hartford Rubber Works, Hartford, Conn. Rubber Goods for Mechanical purposes accurate mould work to order.

The Delusion Mouse



And shuts the door by his own weight. And then he jumps right through a hole, And thinks he's out; but, bless his soul He's in a cage, some how or other, And sets the trap to catch another.

Over Two Million of the Delusion Mouse Traps

have been sold since it was put upon the market, and the sales are increasing rapidly each year. No better evidence could be produced to show that it exactly meets the wants of the public.

LOVELL MFG. CO., LIMITED, Erie, Pa.

Clothes Wringers,

Delusion and Bonanza Mouse Traps, The Folding Wire Rat Trap,

Erie Rat Trap, &c.

Send for Catalogue.

COVERT MANUFACTURING CO.



BUY SNAPS, CHAINS AND ROPE GOODS

BEARING THE ABOVE TRADE-MARK. They cannot be equalled in price and quality. Are standard the world over. For sale by all leading Jobbers at factory prices Send for il ustrated Catalogue and Price List.

Covert Manufacturing Co., WEST TROY, N. Y.

OI INTON WIDE OI OTII OO GLUIH GU.,

WIRE CLOTH, HEX. NETTINGS, WIRE LATH AND FENCING.

Perforated Metals. GALVANIZERS AND TINNERS OF

WIRE CLOTH and NETTINGS. "CHAMPION" Clinton "Standard" (Number 33 Wire) Painted Window Screen Wire Cloth.

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No. 190, Fine Polished Brass, per gross \$16.00,

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Bright Wire Goods. Tassel Picture and Bangle Hooks, and Specialties in Wire Wire Nails of all kinds and sizes.

SABIN'S LEVER DOOR SPRINGS Coil, and Sabin's Volute Springs SABIN MACHINE CO., Montpelier, Vt.



SMALL GRAY HAIGHT & CLARK, MANUPACTURERS OF IRON



HE HUCKEYE JUHIOR The Lightest Running. Most Durable and Far Surpassing all AST 7005 & 60. other Machines made 10, 12, 14 and 16 inch cut. SPRINGFIELD.O. ALSO MANUFACTURERS OF THE Buckeye Hose Reel and Lawn Sprinkler, Buckeye Wrought Iron Fencing, Buckeye Force Pump, ---AND-Iron Turbine Wind Engines

SEND FOR CIRCULAR AND PRICE LIST.



Warehouses, Car Barns, Freight Depots, Mills, Factories,

and wherever Large or Heavy Doors are used.

These Hangers are absolutely without com-petition in strength, style and price. Sam-ples sent to the Trade for inspection and exhibition, and special prices quoted on appli-

Scranton Mfg. Co. 68 to 74 W. Monroe St., CHICAGO:



W.H.CARTER'S PATENT NEEDLE HAY KNIFE.

Carter's Improved NEEDLE HAY KNIFE, THE BEST IN THE WORL

Patented April 29, 1884. provement patented April 28, 1885, of which we are the sole t celebrated knives of other makers, and has proved an easier ial excellence consists in the chisel-edge tooth shown in the engine mow, stack and bale; also for ditching, cutting peat, or any of n be readily ground by the most inexperienced, as it requires to b break, all that is necessary to replace the damage is to grind n ordinarily be sharpened with a compress and have less than the control of the contro



ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of r manufacture, especially adapted to Grocers' use and all retailers coffee They are highly ornamental, and workmanship of the very st. We make more than 30 styles.

ALSO, LANE'S PORTABLE COFFEE ROASTER. Will roast 30 to 40 lbs. at once, and can be used as a stove at other times. Send for descriptive list to Manufacturers,

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Our agents, John H. Graham & Co., 113 Chambers St., New York
parry a full line of our goods, and will be pleased to serve you at

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BRICK FIRE

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BRICK

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Twenty years' practical experience.

ESTABLISHED 1848. TROY FIRE BRICK WORKS, Troy, N. I. James Ostrander & Son, FIRD BRICK,
Tiles, Blast Furnace Blocks, &c., and in a Special
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Successor to GARDNER BROS., MANUPACTURER OF "STANDARD SAVAGE" FIRE BRICK, TILE & FURNACE BLOCKS.

OF ALL SHAPES AND SIZES liner and Shipper of "Mount Savage" Fire Clay WORKS, Ellersile, Alleghenv Co., Md.
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All dimensions of Firebricks and Shapes. Fire Clay for Furnaces, Coke Ovens, Boil-ers and Patent Grate Linings. Drain Tile, Street Paving Blocks and Fire-Proof Hol-low Bricks for Buildings.

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THE NEW EASY LAWN MOWER

The leading mower in the market. Front Cut. Steel. Open Roller Traction. Easy and Noiseless in Operation

The only mower that will cut Wet Gress, Narrow Borders, and close to walls and fences. Warranted in every particular.



LAWN MOWER

The New Model

Our Latest & Best MOWER. Send for Circular &

lty, dura-bility, and qualityofwork t is unequalical, while for Lightne other Lawn Mowe

Simplic

CHADBORN & COLDWELL MANUF'G CO. NEWBURGH, N. Y.

METAL AND RUBBER STAMPS,



BELLOWS & DICKEY, 39 to 43 Vinduct St., Cleveland O.

Plow Colters, Blades and Rubs.

Adjustable, Caster, Stationary.

All Kinds and Sizes.

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NAIL CO., CLEVELAND,

Brads or Finishing Nails. Car Nails. Cigar Box Nails. Tin and Slate Roofing Nails. Wire Spikes for Track and Dock Work. Wire Tacks. BLIND AND BED STAPLES AND LINKS. MCGREGOR NAIL BOXES, AND
WIRE NAILS OF ALL KINDS, BARBED OR SMOOTH,
PLAIN, TINNED OR GALVANIZED.

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Thaplin's Patent Iron Planes.





SMOOTH PLANE.

CORRUGATED BOTTOM. This Cut shows the surface of our new Corrugated Iron Planes. The corrugations afford ample air spaces, and reduce the traction and friction to the minimum. Same price as

These Planes (with a smooth face) have been in the market for many years, obtaining a steadily increasing trade as they have become known. We claim for them the utmost simplicity of construction, prompt adjustment and superior beauty of style and finish.

JACKS AND JOINTERS.

The clamp plate and lever are nickel-plated; the handle is of checkered rubber, which is stronger than any wood handle, and affords an easy, firm grip; also made with nickeled iron handle, which lists 25 cents less on each number.

CORRUGATED FACE. SMOOTH FACE.

202, Iron Simooni Flane, 741/2 in. Cutter #3.0	
No. 203, Iron Smooth Plane, 8x13/4 in. Cutter 3.2	
No. 204, Iron Smooth Plane, 9x1 4 in. Cutter 3.3	5
No. 1205 No. 205, Iron Smooth Plane, 9x2 in. Cutter 3.5	0
No. 206 Iron Jack Plane, 12X2 3,8	15
No. 1207 No. 207, Iron Jack Plane, 15x21/8 4.2	15
No. 12c8	0
No. 1210 No. 210 Iron Jointer Plane, 22X21/2	5
No. 211, Iron Jointer Plane. 24x256 6.7	5
With Adjustable Throat.	
with Adjustable Infoat.	
Wa Two Smooth Dlane 0-1/	

No. 233. Iron Smooth Plane, 8x1¾ No. 255, Iron Smooth Plane, 9x2... All of these Planes are Nickel-Plated finish. This Adjustable Mouth Smooth Plane is a new feature, and meets with a great deal of favor.

No. 20, Block Plane, Japanued, 61/4x11/4 in. Cutter. \$1.40 No. 30, Block Plane, Nickel-Plated, 61/4x11/4 in. Cutter. 1.05 Both with Adjustable Throat.

THE FOLLOWING JOBBERS CARRY A GOOD ASSORTMENT BIGELOW & DOWSE, Boston

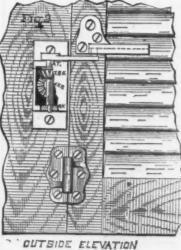
HENRY BROOKS & CO., Boston, WALBRIDGE & CO., Buffalo, JOSEPH WOODWELL & CO., Pittsburgh. KRUSE & BAHLMANN, Cinci A. F. SHAPLEIGH & CANTWELL HDW. CO.,

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BRIGHT IRON AND BRASS

WIRE GOODS.



Also Bright Wire Goods for Cotton and Woolen Mills. Wire straightened, cut, milled and bent into any shape, with or without thread. Write for Catalogue and Prices.

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January 13, 1887.	Т
PHILADELPHIA.	Sad Irons.—4 to 10 b
Lioyd & Supplee Hardwars Co. Terms, 30 days. For 80 or 90 days, interest added at 8 per cent. per annum.	夢Late. Washita Extra.
Anvils. 8 per cent. per annum. Peter Wright's. * D	Washita Sips P 50¢ Washita Axe. P 15¢
Trenton	Washita Sips Washita Sips Washita Sips Washita Sips Washita Axe Washita Ax
Zameta VI 4 4 4 37 b 90 4 900 97 00	Flat Head Iron dis 80 % Flat Head Brass dis 75 % Round Head Brass dis 70 % Round Head Iron dis 75 %
Julie's Kentucky and Yankee, w dos. net. 90.50 @ 7.00 William Mann, w dos. net 90.50 @ 7.00 Favorite w doz. net. 6.00 e 10.00	Species.
Augers and Auger Bits.—New List January 7, 880. dis 60@60&5 \$	Plated. dis 50&10@00 & German Silver dis 50 & 50&5 \$ Britannia, Boardman's. dis 50 & 50&5 \$ Britannia, Parker's. dis 90&10@00&10&10 \$ Tinned. dis 90 \$ Tinned. dis 50 \$ Germ No. 3 small Japanned. \$2.00 \$ dis 50&10 \$ Germ No. 2 medium Japanned. 2.75 Coli No. 10 \$ gross net. \$5.50@6.00 Other Standard Springs dis 50&10@00 \$ Warner Door Springs, \$ cos. \$2.50. dis 40&10 \$ 50 \$ \$ Standard Spring Hinger-
New Haven Copper Companydis. 60&10 \$ Benjamin Pierce Auger Bitsdis. 40 \$ ennings' Auger Bits, new list Jan. 1, 1884.dis., 25 \$	Springs.—Torrey dis 50 % Gem No. 3 small Japanned 22 % dis 50 & 10 \$ Gem No. 2 medium Japanned 22 % dis 50 & 10 \$
Cook's Auger Bits and Augers	Coil No. 10 W gross net. \$5.50@6.00 Other Standard Springs dis 50&10@60 % Warner Door Springs. \$ goz. \$2.50. dis 40&10@50 \$
Balances.	Standard Spring Hinger— Single No. 0. ** dos. net
Light and Commondis. 50 \$ Bells. Bevin Bros. Mfg. Co. Light Hand Bells dis. 75@75&10 \$	Other Standard Spring Hinges
Light Hand Bells dis 75&10@75&10&5 \$ 8wiss Pattern Hand Bells 60 Connell's Door Bells dis 20&10 \$ 9t. Western & Kentucky Cow, newlist.dis. 70@70&10 \$	Warner Door Springs, \$\(\) 0.5. \$2.50. \(\delta \) 40&10 \(\otimes \) 50 \(\text{S} \) Standard Spring Hinger- Single No. 0. \$\(\otimes \) dos. net. \$\(\text{1.106.1.25} \) 5. Single No. 1. \$\(\otimes \) dos. net. \$\(\text{1.256.1.50} \) Other Standard Spring Hinges. \(\delta \) 40&25&210&40 \(\text{S} \) Stocks and Dies. \(\delta \) 40&210&40 \(\text{S} \) Siove Polish. Gem. \$\(\otimes \) \$\(\text{2.25} \) 40.60 \(\delta \) 10 \(\text{S} \) Fire Fig. \$\(\delta \) 3.00 gross. net Tracks. \(\delta \) Combination discounts Shoe Nails-4.8, and over, 5\(\delta \) \$\(\text{Combination discounts} \) Shoe Nails-3\(\delta \) 8, and under 7\(\delta \) \(\delta \) 10 \(\delta \) 5000ble Pointed Tacks. \(\delta \) dis 80\(\delta \) 80\(\delta \) 8000 80\(\delta \) 5 \(\text{Traps.} \)
Bering Machines Upright, without AugersList, \$5.50 \ Angular, without AugersList, 6.75 \dis. 50 \$	Shoe Nails—316-8, and under 7# 10 %
Belts.—Eastern Carriage Bolts, new list, June 10 184	Genuine Oneida—Newhouse
Statiles, wrought Shutter	Wrenches. Agricultural dis 80&10@80&10&5 % Coes' Genuine
SFRC68s	Wire. dis 80&10 k Bright or Annealed, No. 0 to 18dis 725,455,675 g Bright or Annealed, No. 10 to 28
American Bail	Wire. Bright or Annealed, No. 0 to 18
Russa	Galvanized, Nos. 7 to 18 Market Lies die ette die
Cast Fast Joint, Narrow	Wringers. Per dos. Peerless No. 246. Peerless No. 256. Peerless No. 256. Peerless No. 316. Universal. No. 146. Science S
Cast Acora, Japanned Cast Mayer's Loose Joint Wrought Loose Pin	Universal, No. 2. 27.00 5 Universal, No. 2. 30.00 5 Universal, No. 14 31.00 5
Wrought Loose Pin. dis 65&5 \$ Wrought Table Hinges and Back Flaps dis 65 \$ Wrought Loose Joint. dis 65&5 \$ Wrought Narrow Fast dis 65 \$	Universal, No. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Blind Butts dis. 75&2 * Parker dis. 80 *5 6 80 & 10 * Clark dis. 80 *5 6 80 & 10 * Shepard dis. 75 & 10 & 5 6 8 5 Lull & Porter dis. 80 * Huffer's dis. 50 *	Triversal for Set Tubs. C 1.
Luil & Porter dis, 80 % Huffer's dis, 80 % Customs Bed (new Her July % 1896) Place dis 50 %	Excelsior, for Stationary Tubs, No. E. In-inch 36,00 = Excelsior, for Stationary Tubs, No. F. 11-inch 40.50 Excelsior, with Folding Bench, No. A. 10-inch 45,00 = Excelsior, with Folding Bench, No. A. 10-inch 45,00 = Excelsior, with Folding Bench, No. A. 10-inch 45,00 = Excelsior, with Folding Bench, No. A. 10-inch 45,00 = Excelsior, with Folding Bench, No. E. 10-inch 45,00 = Excelsior, March 2016, No. E. 10-inch 45,00 = Excels
Casters.—Bed (new list July 8, 1886; Platedis 50 &10@60 \$ Chains.—German Halter and Coll, list June, 1884	PITTSBURGH.
Chiels.—German Halter and Coll. list June. 1884 Galvanized Pump	Merchant Iron.
Chisels.—Socket Framing	TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 \$\vec{v}\$ cent. for cash if remitted within 10 days from date of invoice,
Coffee Mills.—Box and Side (new list Jan. 1. 1880	rates see weekly Pittsburgh Trade Report.
Almelony Walden Dooket	Flat Rag
Pennsylvania Knife Co	
Door Hangers.—Cronk Barn Door HangersNo. 6, \$12.00; No. 5, \$14.00; No. 6, \$18.00 dis. 50&10@50&15 \$ American Parlor Door Hanger\$6.00; dis 20&10 \$ Drawlug Knives.	1 to 1% 2.0¢ 4\(to 5. \ 3.5¢ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \ \\ \
Hart Mfg. Co.'sdis. 75@75&8 \$ Adjustable Handle	14 to 114 Odds 170%
Nicholson dis 60&5@69&10 \$ Disston dis 60&10@60&10&10 \$ Butcher Butcher	% to 114 inch
First Machines	# to 134 by 5-16 to 34 inch
Crown = 45 in. roll cach 2.50	Wagom Box Iron. % inch, Nos. 13 & 143.2 % inch, Nos. 11 & 123.6
Burnished	1 to 1% by 1/4 5-16. 2.3e 11/4 to 6 by 1/4 to 3-16. 2.3e 1/4 11/16 by 1/4 to 3-16 2.2e
Hammers. Yerkes & Plumb's, new list	1½ to 6 by ½ to 3-16 2.5¢ & 11.16 by ½ to 3-16 2.2¢ ½ to 6 by Nos. 11 & 12.2.6¢ & 11.16 by Nos. 11, 12.3.5¢ 1 to 1½ by ½ to 3-16 2.6¢ & 2.11.16 by Nos. 11, 12.3.5¢ 1 to 1½ by Nos. 11 & 12.2.7¢ ½ & 2.16 by Nos. 11, 12.3.6¢ ½ & 2.16 by ½ to 3-16 3.8¢ ½ to 2.18.8¢ ½ to 3-16 3.8¢
Handles. Disston Loop Handles Cross-Cut20€ pair net Boynton Loop Handles Cross-Cut20€ pair net	14 to 4, Nos. 13, 14, 15.2.8¢ 16, 10 ty Nos. 11 & 21.2.30¢ 16, 10 ty Nos. 11 & 21.2.30¢ 16, 10 ty Nos. 11 & 21.2.30¢ 17 to 2, Nos. 16, 17, 18.2.9¢ 14 to 2, Nos. 16, 17, 18.2.9¢ 14 to 2, Nos. 10.3.0¢ 14 to 2, No. 20.3.3.0¢ 14 to 2, No. 20.3.3.0¢ 14 to 2, No. 21.3.2¢ 16 to 2, No. 23.3.2¢ 16 to 2, No. 23.3.2¢ 16 to 2, No. 21.3.2¢ 16 to 3, Nos. 18, 14 & 15.3.7¢ 16 Nos. 19 and 20.3.9¢ 16 Nos. 16 to 4 to 4 to 4 to 5 Nos. 19 and 20.3.0¢ 16 Nos. 16 to 4 to 4 to 5 Nos. 19 and 20.3.0¢ 16 Nos. 16, 17 and 18 to 4 to 5 Nos. 19 and 20.3.0¢ 16 Nos. 19 and 20.3.0¢ 16 Nos. 19 and 20.3.0¢ 16 Nos. 19 and 20.3.0¢ 18 to 16, Nos. 19 an
### Hatchets. Gis 40&5 9 Gis 40 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	13 to 2, Nos. 16, 17, 18.2.96 to No. 21. 3.86 13 to 2, No. 19. 3.06 to No. 22. 3.86 14 to 2, No. 30. 3.16 11.16, Nos. 13, 14 & 15, 3.76
Hap and Straw Kuives. Lightning. # doz., \$18.00 dis. 25 g Electric. # doz., \$18.00 dis. 25 g Electric. # doz., \$18.00 dis. 25 g Wadsworth. # doz., net d's 4064085 s Walton Straw Knives. # doz. \$12.50@18.50 Gem Hay Knife. # doz \$12.50@18.50	11.16, Nos. 19 and 20, 3.5¢ 15-16, 1 & 114, Nos. 18, 14 & 15
Walton Straw Knives # ds /.net 17.00 Gem Hay Knife	17 & 136, Nos. 10, 17 & 136, Nos. 10, 17 & 136, Nos. 13, 14 and 15, 3,9¢ %, Nos. 16, 17 and 18, 4,0¢ %, Nos. 19 and 20,
Strap and T	15-16, 1 & 154, No. 213.5¢ 15-16, 1 & 154, No. 223.4¢ \$\frac{4}{4}\$, No. 224.4¢ \$\frac{4}{4}\$, No. 234.4¢ \$\frac{4}{4}\$, No. 234.4¢ \$\frac{4}{4}\$, No. 234.4¢ \$\frac{4}{4}\$, No. 234.4¢ \$\frac{4}{4}\$, No. 234.4¢
Pol'ed and P't'd 31 28 26 25 24 23 dis 25&10 6 25 10 10 18 dis 25&10 6	% Nos. 16, 17 and 18, 3.3¢ 9-16, Nos. 16, 17 & 18, 4.2¢ 34, Nos. 19 and 203.4¢ 16, Nos. 19 and 204.3¢ 16, No. 214.4¢
Pol'ed and P't'd. 51 28 26 25 24 23 dis 25&10 8 dinton. 25 21 20 19 18 dis 25&10 8 "Pol'ed & Pt'd. 54 29 21 20 19 18 dis 25&10 8 aranac	13-16, Nos. 18, 14 & 153.4¢ 9-16, No. 22 4.5¢ 13-16, Nos. 16, 17 & 183.5¢ 9-16, No. 13. 16, 10. 19 16, 10. 19 16, No. 18 17 18 4.3¢
Branford Locks	13-16, No. 21. 3.7¢ 13-16, No. 22. 3.8¢ 14, Nos. 13, 14 and 15. 3.5¢ 14, Nos. 13, 14 and 15. 3.5¢
\$\psi\$ dos. \$\\$0.00 5.50 6.50 7.50 8.50 10.00 12.50 \\ \$No. \dots 57 58 59 60 61 62 63 \\ \$\psi\$ dos. \dots 418.00 26.00 38.00 \\ \$\psi\$ dos. \dots 60.8	The prices under Hoop do not apply to Cotton Ties. 1.10¢ † 5 extra will be charged for each gauge lighter than the lightest indicated.
Buckeyelarge ist, net; small list, net	apecified lengths
Guards 409 extra. Laws Nowers.—Pennsylvania Philadelphia Excelsior. Continental	Sarrel Hoops. 11/4 to 2 in., cut to length. 9 to 11 %, \$\pi\$ set of 6 boops. 3.0\$ (8 % and less than 9 %, \$\pi\$ set of 6 hoops. 3.1\$ (Less than - %, \$\pi\$ set of 6 hoops. 3.1\$
Continental Quaker City Lawn and Garden Pumps, Holland Patent. list, \$5.00, dis 10 \$	Less than - B, # set of 6 hoops
Mattecks.	Wa 0.6 heavier 0 64: Plow Slahe 9 04: Plow Wit co.
Melasses Gates.	Nos. 10 to 14. Common. Charcoal. Junista.
Lincoin's Gates	Nos. 18 to 21. 3.6¢ 5.1¢ 6.6¢ 8.1¢ 6.8¢ Nos. 25 to 24. 3.8¢ 5.3¢ 6.8¢ 7.0¢
Cork Lined Cocks	No. 28
Stebbins' Gates	Wood's Patent Planished Sheet, lst quality (A)
Enterprise Stuffers	American Galvanised Sheets. (Sono C. H. B.) Brand. Patent Leveled: Nos. 14 to 20
Waverly Apple Parers per dos \$1.50 Goodell White Mountain Apple Parers per dos \$1.50 Goodell Mething Apple Parers per dos \$1.00	Nos. 14 to 20. 13¢ No. 27 15¢ Nos. 21 to 24. 13¢ No. 28 16¢ Nos. 21 to 24. 13¢ No. 28 16¢ Nos. 25 and 26. 14¢ No. 29. 18¢ 60 @ 62% \$ discount.
Parers, *pple and Feacu. Ideal Apple Parers	Coal Screen tron. 1% by % by 5-162.5¢ 1 by % by 5-163.0¢ Angle Iron.
Bailey (S. R. & L. Co.)	112, 114, 2 and 214 " 2.8¢ 114 by 14 " 3.3¢ 114 inch 2.9¢ 114 by 14 " 2.4¢
Butcher's and Levels. Plumbs and Levels. Stanley's Adjustable. dis. 70&10 6 Pleks.—New list. 60&5@60&10 5	8 b to the yard24 # 20 b to the yard2.36 12
Picks.—New list. 60-85-800-810 \$ Raker Strops. Lamont Combination. 9-00-84-00 Lamont Combination. 1 gross lots \$42.00 Imitation Emerson. 9-00-82-00, validatio \$ Rules.—Stanley Boxwood. dis. 90-02-90-81-02-10	### ### ### ### ### ### ### ### ### ##
Imitation Emerson	336 by 36 and 3 by 36 " " 12 and 18 b " 3.56 236 by 5-16 " 8 b Rail. 4.06 Flat Rails.—Punched and Countersunk.
Steelyards Hart's Pattern	1½ to 2 by ½ to % inch
## Mies. Stauley Boxwood.	Jurista Nail Rods, 6.06; Norway Nail Hods, 7.56. Guard Iron, 123/23% and 123/23%
Custer's	Jurista Nail Rods, 6.06; Norway Nail itods, 7.54. Guard from \$1.38236 and \$2.36236. 2.56 Guard from \$1.38236 and \$2.36236. 3.3.76 Drag Bars. 5.56 (cyl. a. Landside from 2.76 Dropper Bars 5.56 (Cyl. a. Landside from 2.76 Dropper Bars 5.56 (Cyl. a. Landside from 2.76
Custer's. **Squares** **Bteel and Iron.dis. 60&10 \$: full cases dis. **Tok10@70&10010 \$ Try Squares, Stanley. Disston's Try Squares. Seythes, Golden Clipper, Damascus Blade, Boxed and Sharpened. Clipper No. 19, Bronsed Blade, Boxed and Sharpened. **Comparison of Blade, Boxed and Sharpened. Clipper No. 19, Bronsed Blade, Boxed and Sharpened. **Comparison of Blade, Boxed and Sharpened. Clipper No. 19, Bronsed Blade, Boxed and Sharpened. **Comparison of Bla	See Pittsburgh Trade Report. Tool Steel.
and Sharpened	Classification Adopted April 13, 1886, Steel Association of United States. BUCND, SQUARE AND OCTAGON.
Dieston's Circular dis 45&10 s Cross-Cut No. 2, Plain Tooth dis 45&10 s Cross-Cut Patent Tooth dis 45&10 s	E./GND, SQUARE AND OCTAGON. \$4 to S. base, 8.0¢ 54 to 7 3.0¢ 14 ft 9.32 3.0¢ 254 to 3. ext. 1.0¢ 754 to 8 3.5¢ 3.16. 5.0¢ 354 to 4 1.5¢ 9.16 to 14 5.0.5¢ 5.32 10.0¢ 454 to 5 2.0¢ 7.16 to 34 10.0¢ 454 to 6 2.0¢ 7.16 to 34 2.0¢ 14 18.0¢ 354 to 6 2.8¢ 5-16 and 11.32 2.0¢
Cross-Cut Champion Tooth dis 45&t0 \$ Shevels and Spades. dis 20 \$ Oliver-Ames & Sons, new list dis 50&t0 5 Griffiths, C. \$ Manual dis 60@60&t0 \$ Manual dis 60@60&t0 \$	FLATS.
Rowland	2 to 8-16 inches wide x S to % inches thickbase, 8,0¢

-	HE IRON AGE	
25¢ 20¢ 50¢	List of Feetras #\bar{n}\)	Per siz Be po car
80 % 75 % 70 % 75 %	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Fr Fr Pk Pk Sk Pi Co
0.5 % 00 % 10 % 10 % 50 % 210 %	Cutting to multiples or specified lengths, % # B for over 24 in.; under, according to contract.	Sq
00 % 50 % 01.25 01.50 040 % 10 %	GRUCIBLE MACHIMERT, ROUNDS AND SQUARES. 4 to 3 inchesbase, 5.0¢ % to 7.16 inextra, 0.5¢ 36 to 4 inextra, 0.5¢ 5.16 and 11-32 in.ex, 1.0¢ 45 to 5 inextra, 0.5¢ 5.16 and 11-32 in.ex, 1.0¢ 45 to 5 inextra, 1.0¢ 1.0 and 11-32 in.extra, 3.0¢ 45 to 1.10 in.extra, 1.0¢ 1.0 in.extra, 2.0¢ 45 to 1.10 in.extra, 0.2c outpout the list. Flats, one-half the extras of the Flat Tool Steel classification. Cutting to multiples or specified lengths, 16¢ per pound for anything over 24 inches iong. For lengths 24 inches or less, according to to special contract. CRUCIBLE SPRING SPRIE, FLAT.	Fo He
10 % 10 % 21	24 Inches or less, according to to special contract. CRUCILLS SPRING STREET, VAT. 14 to 4 in. x No 4 gauge to 46 in. inc. 13 to 4 in. x No 4 gauge to 46 in. inc. 14 to 3 in. x No 5 gauge to 7 gauge inc. 15 to 3 in. x No 5 gauge to 7 gauge inc. 16 to 3 in. x No 8 gauge to 10 gauge inc. 16 to 3 in. x No 8 gauge to 10 gauge inc. 17 to 3 in. x No 11 gauge to 10 gauge inc. 18 to 3 in. x No 11 gauge to 20 gauge inc. 18 to 3 in. x No 11 gauge to 20 gauge inc. 18 to 46 in. x No 17 gauge to 20 gauge inc. 18 to 46 in. x No 17 gauge to 20 gauge inc. 18 to 46 in. x No 17 gauge to 20 gauge inc. 18 to 46 in. x No 17 gauge to 25 gauge inc. 18 to 46 in. x No 17 gauge to 25 gauge inc. 18 to 46 in. x No 17 gauge to 26 gauge inc. 18 to 46 in. x No 17 gauge to 26 gauge inc. 18 to 18 inches. base, 5.6 for 16 in. 18 to 18 inches. base, 5.6 for 16 in. 18 to 19 in. 18 to 19 in. 18 to 19 in. 18 to 19 in. 18 to 20 in. 18 to 3 in. 18 to 4 in. 18 to 3 in. 18 to 4 in. 18 to 5 in. 18 to 5 in. 18 to 6 in. 18 to 6 in. 18 to 6 in. 18 to 6 in. 18 to 7 in. 18 to 6 in. 18 to 6 in. 18 to 7 in. 18 to 6 in	Sa Sa Ra Ra Ra Ra Ra Ra Ra Sa Ra Ra Ra Ra Ra Ra Ra Ra Ra Ra Ra Ra Ra
0.43 % 410 % 275 % 210 %	ROUND AND SQUARE CRUCIBLE SPRING STEEL.	Pi Pi Ei
In 10 days.	Diameter. Diameter. To 46 inch	St St St
net, dis2 % cash l	% to 3 lb. lbcbase, 4.0¢ ½ to 11.16 inch inc0.2¢ Extra	
errent of 2 % ate of card port.	134 in. and wider x 34 to 5 16 in. thick	
2.1¢ 2.2¢ 6.3.4¢	14 inch and wider x % to 1 inch thick base, 2.86 Extras same as Flat Machinery extras. THE STEEL, 8QUARE EDGES. Throughout the list 0.2¢ more than for same sizes of Round Edge Tire.	
2.8¢ 3.0¢ 5.0¢	134 inches and wider x 34 to 1 inch thick base 2.94 Extras same as Machinery Extras. SLEIGH-SHOE STREE. 134 inches and wider x 34 to 1 inch thick base, 2.74 Extras same as Machinery Extras.	
3.5¢ 3.0¢ 3.0¢ 3.6¢ 3.6¢	114 to 4 in. x No. 4 sauge to 24 gauge inc base, 3.01 and 116 in. x No. 1 range by gauge inc extra. 0.22 1 to 3 in. x No. 5 gauge to 7 gauge inc extra. 0.54 5 to 3 in. x No. 8 gauge to 10 gauge inc extra. 10 4 to 3 in. x No. 11 gauge to 10 gauge inc extra. 2.04 5 to 3 in. x No. 11 gauge to 30 gauge inc extra. 2.04 5 to 3 in. x No. 10 gauge to 30 gauge inc extra. 3.04 5 to 36 in. x No. 10 gauge to 16 gauge inc extra. 3.04 5 to 56 in. x No. 17 gauge to 30 gauge inc extra. 3.04 5 to 56 in. x No. 17 gauge to 24 gauge inc extra. 3.04 8 to 56 in. x No. 21 gauge to 24 gauge it extra. 5.04 Bossemer and Open-Hearth cut to letyth, 24 inches and over, 0.14 per pound extra; and under, by special contract.	
6.3.2¢ 2.3.3¢ 1.8.5¢ 2.3.6¢ 3.8¢	\$\frac{10}{6} \text{ to 136 inches. base, 3.0c} \frac{5-16 inchextra, 1.0c}{6} \text{ to 9-16 inextra, 0.2c} \frac{3}{6} \text{ inchextra, 1.5c} \frac{1.0c}{6} \text{ to 7-16 inextra, 0.5c} \frac{1.0c}{10} \text{ cuttleff} \text{ steri}	
3.7¢ .3.8¢ .3.9¢ 5.3.7¢ 8.3.8¢ .3.9¢ .4.1¢ .3.9¢ .4.1¢ .4.2¢ .4.3¢	14 gauge thick and heavier. base, 3.24 15, 16 and 17 gauge. extrs, 2; 18 and 19 gauge. extrs, 2; 18 and 19 gauge. extrs, 3; Rounds, 4 diameter and heavier. base, 3.4; Rounds, smaller sizes, extras same as Machinery. Double bevel, 14 gauge and heavier. 4.2; Double bevel, 14 gauge and heavier. 4.2; Rake Steel. Open-Hearth or Bessemer. 8.2; Rake Steel. Open-Hearth or Bessemer. 8.5; Hoe Steel. Open-Hearth or Bessemer. 8.6; Auger Bit Steel. Open-Hearth or Bessemer. 8.7; Screw-Driver Steel, Open-Hearth, or Bessemer. 8.6; Plow Slabs. Open-Hearth or Bessemer. 8.6; Ovais and Haif Ovais, Haif Rounds and Special Slapes subject to special sgreement, but at price and No freight allow asseme wight # foot. No freight allow asseme wight # foot. No freight allow asseme wight # foot.	
4.1¢ 4.2¢ 4.3¢ 4.4¢ 4.5¢ 4.6¢ 5.4.3¢ 8.4.4¢	pounds of Scett in one sampment. Axie Biliets. Siscellaneous. Sythe Back Steel. 3 f Thrasher Steel. 346 Grain Drill Bars. 346 Rolled Ham'r Biliets. 246 Grain Drill Points. 3546 Catter Shoe. cut to ienaths and tapered. 36 Rolling Coulter Biands, cut and punched. 47 Terest.—Four months: 3 per cent. discount for cash fremitted within 30 days.	
1.0¢ 4.7¢ 4.8¢ 1.9¢ a Ties, gauge	Plate Steel. Tank Steel 3 inch thick and heavier	
3.0¢ 3.1¢ 3.2¢ i, in- 10	Shell Steel Heads 95 inches diameter to 105 inches	
6.0¢ 6.3¢ 6.6¢ 6.8¢ 7.0¢ 7.2¢ 7.6¢ wide,	Shell Steel Heads, 105 Inches diameter to 108 inches diameter extra on each thickness, 1.09 Flange Steel, 4 inct thick and heavier, 50,000 to 60,000 bounds tensile atrength base, 8.5 Flange Steel, 3-16 inch thick, 50,000 to 60,000 pounds tensile atrength extra, 0.3 Flange Steel, 8 range and 9 gauge thick, 50,000 to 60,000 pounds tensile atrength extra, 0.5 Flange Steel, 8 range and 9 gauge thick, 50,000 to 70,000 pounds tensile atrength extra, 0.6 Flange Steel, 10 gauge to 12 gauge thick, 50,000 to Flange Steel Flates, 50 Inches to 100 inches wide. Flange Steel Flates, 50 Inches to 100 inches wide.	
15¢	Flange Steel Heads, 95 inches diameter to 105 inches diameter	
3.0¢	Inches diameter	
2.34 2.84 2.84 h; 28	Best Bo'ler Steel Plates, 100 inches to 106 inches wide. extra on each thickness, bet Best Boiler Steel Heads, 96 inches diameter to 106 inches diameter	P
4.04	THE COL	

These sinks, being made wrought steel, will not break from heat, cold, or any cause whatever.

We furnish these sinks painted or galvanized, as desired, as prices —freedom from breakage consid-ered—less than for sinks made

Heads, when not in complete Boller sets, to be \$4\$ per pound extra on each above grade, thickness and size. No Steel to be sold as Marine Boller Steel except Best Boller grade. Tank Steel, not stamped, \$4\$ per pound less than Shell Steel, subject to same classification.

Wiscellaneous Cast Steel.

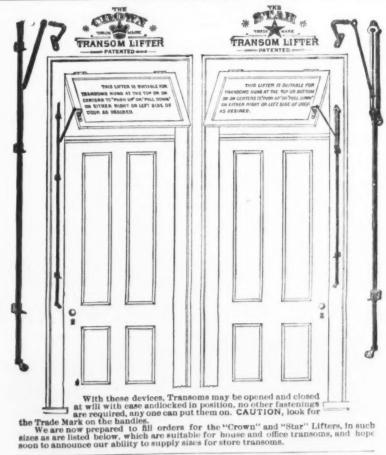
Orange Mineral, True, in 100-b kegs, net 60 days, and not subject either to rebate or freight equalization.

Terms: Note or acceptance at 60 days; or less 25, 5 for cash if paid within 15 days from date of invoice on lots of 500 b and over.

Freight equalized with all points where White Lead is made.

Window Glass.

	Best Boiler grade. Tank Steel, not stamped, 1/2 per pound less than Shell Steel, subject to same classification. Miscellaneous Cast Steel. Augerand Auger Bit	on l Fr Lea	cash if paid within 15 days of so 7500 m and over. reight equalized with ali d is made. Window Gl count, 75 % Single Strength: current * box of Single Streng	point nam. 75&10	s wh	of Iny	voice White
	Pick. plain (hammered).5# Pick and Matrock, bev eled (rolled). 3# Skate Steel. 4# Pike and Cant Hook. 7# Slade Bars, plain. 5#	United		A.A.	Α.	В.	o,
	Coal & Granite Wedge. 7¢ Do., forged to shapes7½ Square.Round.Haif Rnd and Flat Bastard, 8 In. and over6¢ Horse and Shoe Rasp	40 50 54 60 70 80	11 x 14 to 15 x 24 16 x 24 to 20 x 28 15 x 34 to 24 x 30 26 x 28 to 24 x 36 26 x 36 to 26 x 44 26 x 46 to 30 x 50	10,00 12,50 13,25 14,50 15,00 16,75	9.25 11.50 12.00 13.00 13.50 15.25	10.25	8,00 9,00 9,50 10,25 11,00 11,75
2000	Solid Safe Cast Steel	90 94 100	30 x 56 to 34 x 56. 34 x 58 to 34 x 60. 36 x 60 to 40 x 60. Double Strength.	19 25 20.75 22.25	17,50 18,75 20,75	15,75 16,75 18,50	****
	Horse Rake Steel, cut to beveled Hoe and Shovel lengths. Crucible	34 48 54 60	11 x 14 to 15 x 24	15.50 19.50 20.75 22.00	14,00 17,75 19,00 20,25	16.25 17.00 18.25	12,00
20000	Furnace and Floor Plates. 1346 Sand Rolls over 12 Inches diameter. 2346 Sand Rolls 12 Inches diameter and under. 3 6 Roll Phinons over 12 Inches diameter and under. 34 Roll Phinons over 12 Inches diameter 2346 Roll Phinons 12 Inches diameter and under. 346 Rolls Phinons 12 Inches diameter and under. 346 Rousen and Rollins Mill Castings not otherwise	80 84 90 94	26 x 46 to 30 x 50	25,00 26,50 28,50 31,50	23,00 24,50 26,25 29,00	$\begin{array}{c} 19.00 \\ 20.50 \\ 22.00 \\ 23.50 \\ 26.00 \\ 28.50 \end{array}$	***



	rice Li	rown" Lifte	rs.	LIST.	Price List "Star" Lifters.									
	Length			Price Each.	APRIL 8th	No.	Length	Size of Rod.		Price Each				
43 44 45 43% 44% 45%	4 " 5 " 3 " 4 "	% X 1/6	Bronzed Iron, Siekel Plated,	\$0.55 0.65 0.75 1.75 2.00 2.25	1886.	83 84 85 83½ 84½ 85½	4 "	%X%	Brenzed Irea, "" Nickel Plated, "" " K, Chicago	2.25				

PHILADELPHIA BLACK LEAD CRUCIBLE WORKS.



1324 to 1334 Callowhill St., Philadelphia, Pa.



MANUFACTURER SUPERIOR BLACK LEAD CRUCIBLES. Formelting Steel, Brass and other metals. Black Lead Stopper, &c., for Ressemer Steel Makers. Also manufacturer of Superior Quality Hammered Charcoal Iron of different sizes and shapes.

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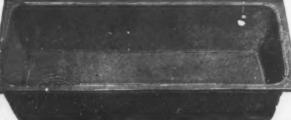


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SOUARE AND HEXAGON NUTS A SPECIALTY. J. E. QUACKENBUSH & SON,

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THE COLUMBUS WROUGHT STEEL SINK, AGENTS. FOR BUTLER'S PANTRY AND KITCHER. (Pat. April 18, 1881.) Entirely new, being stamped from one plate of steel and superior to cast-iron sinks in every particular, being lighter, stronger and more durable.



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from east iron. THE KILBOURNE & JACOBS MFC. CO., Sole Manufacturers, COLUMBUS, OHIO.



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Late Kellogg & Maurice.) Capacity, 14,000 tons. (Late Central Bridge Works.) Capacity, 15,000 tons DESIGNS AND ESTIMATES WILL BE SENT ON APPLICATION TO UNION BRIDGE COMPANY, 18 Broadway, New York.



CLARK'S IMPROVED Ratchet Stocks, Dies & Pipe Vises 🍮

Plumbers, Gas Fitters and Pump Dealers.

With the Ratchet Stock pipe can be threaded in a corner, down in wells, or in positions that would be inaccessible with other tools.

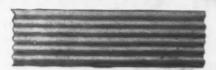
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CORRUGATED IRON *

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THREE SIZES OF CORRUGATION. We carry at all times a large stock from which we can fill orders promptly. Send for Casalogus and Prices

Upright Power Hammer





CLEVELAND, O., Malleable and Cast Iron Fittings and

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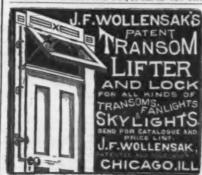
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THE PERFECT DOOR SPRING. Cheap, Simple, Durable, Effective FOR LIGHT AND HEAVY DOORS.



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	BOSTON.	
	Reported by Big. low & Dowse.	
	Ammunition. Cartridges—	
	Cartridges— dis 66 Rim Fire Cartridges. dis 16 Rim Fire Military Cartridges. dis 15 Cen. Fire Cartridges, Pistol and Rifle. dis 46 Cen. Fire Cartridges, Military and Sporting. dis 36 Blank Cartridges, except 22 and 32 cal., an add tional 10 5 over above discounts. Blank Cartridges, 22 cal. \$1.50 Blank Cartridges, 32 cal. \$0.00 Primed Shells and Bullets. dis 25 B. B. Caps, Round Rall. \$1.60 B. B. Caps, Conical Rall, Swaged. 1.76 Primers— Berdan Primers, all sizes, and B. L. Caps (for Sturt-	WWWW.
	vant Shells)	e-
	Shells— Paper Shot Shells, 1st and 2d or S. G. qual. dis 25&5 Paper Shot Shells, Club, Rival, Climax. dis 40&5 Paper Shot Shells, Star Brand. dis 50&5 Brass Shot Shells, first quality. dis 60 Brass Shot Shells, Club, Rivaí and Climax dis 60	MMMMM
The second second	U. M. C. & W. R. A.—B. E., 11 up	M
	Anvil & Viec. Cheney\$3.50 4.50 8.50 6.50 6.50 6.50 6.50 6.50 6.50 6.50 6	W. S. S. S.
	Augers & Bitts Auger dis 15 L'Hommedieu's Sbip Auger dis 25 Jenning's Bitts dis 26 Cook's Bitts dis 50×10 Griswold's Bitts dis 60×10×5 Lewis's Patent Bitts dis 40 Jennings' Pattern dis 50×10×6	١,
	Awning Fixtures. Dearborn's No. 1	
	Axes. P dox \$7.06 Blue Jackets. P dox \$7.06 Francis Axe Co. P doz 7.06 Romer Bros. P doz 6.56 Romer Bros., Polished Steel. P doz 8.06 Axle Grease.	- 1
	Belknap's tin boxes. \$\psi\$ dos \$2.00 Belknap's 5 \$\psi\$ pails. \$\psi\$ dos 7.00 Belknap's 5 \$\psi\$ pails. \$\psi\$ dos 7.00 Belknap's 10 \$\psi\$ pails. \$\psi\$ dos 12.00 Belknap's 50 \$\psi\$ cans. \$\psi\$ \$\psi\$ 10	- 1
	Oak Extra, 31 in., No. A \$\psi\$ dox \$2.50 Oak Extra, 34 in., No. A \$\psi\$ dox \$2.60 Oak Extra, 31 in., No. B \$\psi\$ dox \$2.00 Oak Extra, 31 in., No. B \$\psi\$ dox \$2.00 Oak Extra, 34 in., No. C \$\psi\$ dox \$1.00 Balances, -Chatillon's \$\psi\$ dox \$1.00 Oak Extra, 30 or 34 in., No. C \$\psi\$ dox \$1.00	
	Barn Door Rail. Cast Angle (for Anti-Friction Hangers) # ft., 26 Cast Haif Round # ft., %, 246; %, 36 Wrought Round # ft., 14, 236; %, 36; %, 46	п
	Bird Cages. dis 40&10 ≤ Hendry's Japanned. dis 40&10 ≤ Hendry's Brass. dis 83½&10 ≤ Hind Fasts. dis 83½&20 ≤	1
8	No. 6 Fasts	1
C		1
B	fre. Common, list February 28, 1883dis 65&10 ≤ common,	
B	ering Machines. Eagle Upright, each	
-	racesdis 50 \$ Barber'sdis 50 \$ Spofford'sdis 50&10 \$	
B	rackets. Rick Bros. Bronzed Shelf	8
28	right Wire Goods. Regular list	
BILL	utts.—Union Fast Joint.	

Cocks, Brass. Racking..... dla 55&10 g Globe
Plain Bibbs....
Compression, Eastern Mfg. Co.: . P doz #2.50 8.50 To Screw..... .. P dos 2.50 2.50 Coffee Mills,—New List...... Copper Rivets.....dis 45&10 \$..dis 50&10 \$ Crow Bars,-Cast Steel P B 5¢ Door Springs,-Torroy's Rod... Gem Coll, new list... Drills. - Morse Twist Drill Co.'s. Bit Stock Drills. Wire Gauge Drills. Jobbers' and Letter Drills. Drill Chucks.
Morse's Beach Patent.
Morse's Adjustable...

Carriage Bolts. -- Eagle Norway. Common. new list.

Casters,-Bed and Table ...

Chalk.—White, Carpenter's... Red, Carpenter's... Blue, Carpenter's... Crayons...

Chisels.—Peck, Stow & Wilcox... Underhill, Framing.... Buck's Chisels.

Coal Hods, -Gaiv'd, New List. Japanned, New List.

Cards.

Cards.

Watson's make Horse & Curry...dis 10 \$\) Rev. List.

Watson's make Horse & Curry...dis 10 \$\) Aug., 1883.

.djs 70&10&10dis 40

January 13, 1887. Mayon.
C. Hammong a
C. Hangers.
Hangers.
Policy Underhill dis 40 % Eastern Tool Co.'s. net Hay Kuives.—Lightning. \$18.00, dis 20 % Hinges.—Strap and T (new list). dis 65 % Providence Plate & % 56 % Wrought Screw Hook. \$5 6 % Wrought Screw Hook. \$5 6 % Wrought Screw Hook. \$6 60 % 70 % Hooks and Staples.—Brewer's (new list). dis 70 % Horse Nails....... No. 6 7 8 9 Putnam Pointed..... \$0.24 .22 .21 .205&7 \$ Knobs.
Lanterns, Tubulars, No. 0.
Lanwn Mowers.
Continental.
Ouaker City.
Philadelphia Keystone. Locks.—Norwalk
Fagle Cabinet.
Eagle Trunk
Mallory, Wheeler & Co. Manure Ferks.-W. C. & Co... .. dis 60&10 % Mastocks.
Long Cutter, \$16.00 ♥ dos.
Short Cutter, \$16.50 ♥ dos.

Yek Cutter, \$16.00 ♥ dos.

Measuring Tapes.—Eddy's.

dis 20 ≤
 Meat Cutters.
 dis 30

 Enterprise.
 32
 32
 42

 Nos.
 10
 12
 22
 32
 42

 Each
 \$3.00
 2.50
 4.00
 6.00
 10.00

 Oliers
 Zinc and Tin.
 die 6c210 g

 Brass and Copper
 dis 6c210 g
 dis 6c210 g

 Draper's Common.
 ¥ dos., \$3.76; Patent, ¥ doz \$4.50
 Thompson's.
 ¾ doz \$8.50

 Malleable Iron.
 dis 10 g
 dis 10 g
 dis 10 g
 0x Bows.—Extra finished and varnished...dis 15 % 1½ in., \$\vec{v}\$ dos. pair...\$7 00 | 2 in., \$\vec{v}\$ dos. pair...\$10.00 | 2\vec{v}\$ in., \$\vec{v}\$ dos. pair...\$20.00 P B 2 6 Picks.
L. C. T. W., Adze Eye, 6 to 7 b \$13.00..... Planes.
Auburn Tool Co., Beneh.......
Auburn Tool Co., Fancy...
Auburn Tool Co., English Iron...
N. Y. Tool Co., Beneh... dis 50410 5 Plumb & Levels.—Stanley R. & L. Co..dis 70&10 % Potate Diggers. W. C. & Co., reduced list..... ..dis 60&10 ≤ Pulleys. -- Acme or Excelsior, 1% in P dos 22¢ Pumps.—Union Manufacturing Co. Iron Cistern Iron Pitcher Spout Razors. Genuine Swedish. Genuine Swedish. \$\P\$ dos \$13.50\$ **Rope.**—Manufacturers' list, February 6, 1886

Manila. \$\frac{1}{2}\$ inch and larger \$\Phi\$ 13 \$\phi\$ |

Manila. \$\frac{1}{2}\$ inch and larger \$\Phi\$ 13 \$\phi\$ |

Manila. \$\frac{1}{2}\$ inch \$\Phi\$ 16 lich \$\Phi\$ 18 \$\phi\$ |

Manila. Tarred Rope. \$\Phi\$ 16 lich \$\Phi\$ 18 \$\phi\$ |

Manila. Hay kope. \$\Phi\$ inch and larger \$\Phi\$ 5 11 \$\phi\$ |

Sisal. \$\phi\$ inch and larger \$\Phi\$ 5 11 \$\phi\$ |

Sisal. \$\phi\$ inch \$\Phi\$ 11 \$\phi\$ |

Sisal. \$\phi\$ and 5-16 lich \$\Phi\$ 12 \$\phi\$ = \$\Phi\$ |

Sisal. \$\phi\$ and 5-16 lich \$\Phi\$ 12 \$\phi\$ = \$\Phi\$ |

Sisal. \$\phi\$ and 5-16 lich \$\Phi\$ 12 \$\phi\$ = \$\Phi\$ | Rules.—Stanley, Boxwood.
Stanley, Ivory.
Sad Irens.—Common.
Laundry.
Tallors Geese
Enterprise "Potts" dis 75&10 % andpaper.—Baeder & Adamson...... ash Weights.—Patent Eye..... .dis 60 g Nolin's Clapper Scythes... Nolin's Solid Steel Scythes Emerson Clipper Scythes . Emerson Solid Steel Scythe Shears .- American Shear Co., new list. dis 70 % .dis 20 % Sinks.—Magge Patent.
Snew Shovels.
Skates.—Eastern Acme.
No. 5. Steel Runners.
No. 7. Steel Runners.
No. 10. Steel Runners.
hardened.
No. 10. Steel Runners. hardened.
No. 10. Steel Runners. hardened.
Plated\$3.75 No. 10, Steel Runners, bardened, Nickel Pair 2.00

Plated Plated Pair 2.00

Stocks and Dies.—King's dis 10.05 g

Tacks.—Eastern Mg. Co.
American iron Carpet Tacks, all kinds. dis 65&10 g
Steel Carpet Tacks, sil kinds. Dis, 72, 22.10 g
Swedes Iron Tacks. dis 10.05 g
Swedes Iron Tacks. dis 10.05 g
Swedes Iron Tacks.
Tinned Swedes Iron Tacks. dis 55&10 g
Tinned Swedes Iron Tacks. dis 55&10 g
Copper Finishing and Trunk Nails. dis, 55&10 g
Cigar Box Nails. dis, 55&10 g
Hungarian Nails and Miners' Tacks. dis 55&10 g
Trunk and Clout Nails. dis 65&10 g
Trunk and Clout Nails. dis 55&10 g
Basket Nails.
Chair Nails. dis 55&10 g
Common and Patent Brads. dis 55&10 g
Transom Lifters. dis 55&10 g
Transom Lifters. dis 55&10 g

..... > 53/4

RE

... # dox \$1.50 .each \$8, dis 20 s .each \$7, dis 20 s Enameled Ware. Enameled Kettles..... Enameled Sauce Pans. Files. American File Co. Nicholson File Co. Wringers.
Novelty for Common Tubs No. 2-10-in...

No. 3-11-in...

Excelsior for Stationary Tubs No. E-10-Fly Traps. Paragon Balloon..... dos \$2.00 Excelsior for Stationary Tuos No. 2—12 dos 37.50 Inch.

Excelsior with Felding Bench No. A—10Inch.

Excelsior with Folding Bench No. B—11Inch.

Novelty Set Tub, E.

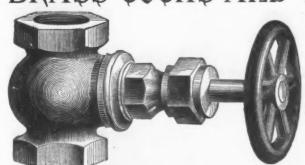
Universal.

\$\psi\$ dos 20.00
Eureka.

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BRASS COCKS AND VALVES



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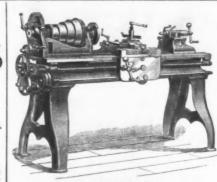
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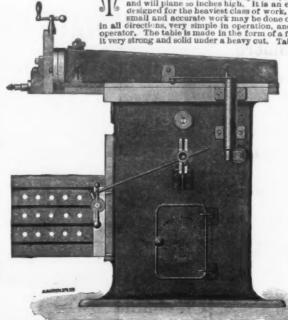
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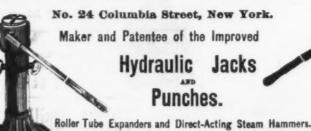


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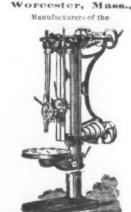
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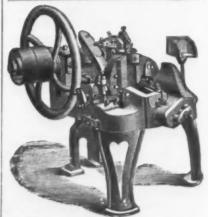
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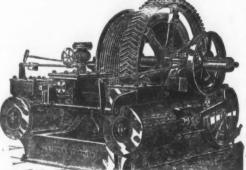


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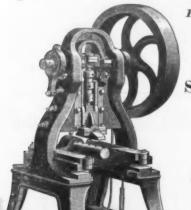
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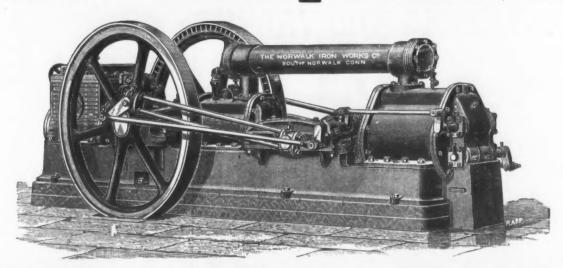
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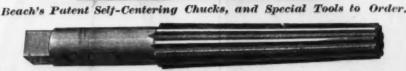
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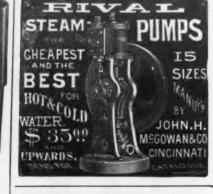
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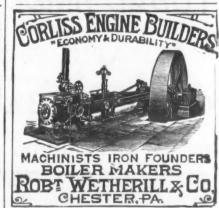




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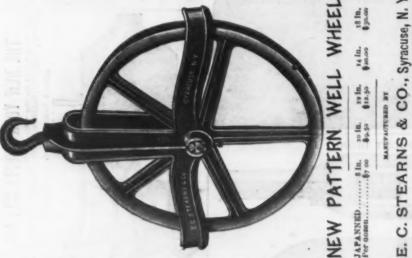
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